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Actinomycosis.—Infections in man due to the aerobic, partially acid-fast *Nocardia asteroides* are rare as compared to those due to the anaerobic Actinomyces bovis. The symptoms, course of the disease and response to therapy are so nearly alike that the disease produced by the two types of fungi should be called actinomycosis. Thirty-two cases of infection with *N. asteroides* have been collected from the literature. The mortality rate appears to be high: 28 of 32 patients were dead at the time the reports were published. The infection was pulmonary in 28 cases, and the brain was the site of metastasis in at least 10. In 2 cases infection of the lungs and the chest wall was apparently cured by surgical drainage, sulfonamide therapy, iodides and roentgen therapy. Two new cases of infection with *N. asteroides* are added in this report. The first was a man of 63, who was hospitalized for three and a half months for cough, sputum, loss of weight and pulmonary disease. He responded well to trials of sulfadiazine therapy, but the etiological agent was not recognized until late, when the fungus was isolated from his sputum, subcutaneous abscesses and blood stream. At autopsy the lungs, peribronchial lymph nodes, heart, thyroid, kidneys, spleen, intestines, muscles and subcutaneous tissues contained abscesses produced by *N. asteroides*. The second case was that of a woman of 49, who was hospitalized for five days prior to death with a clinical diagnosis of an intracranial lesion without localizing signs. Autopsy revealed an abscess in the cerebellum caused by *N. asteroides*. The lungs are suspected as the primary focus, and no other metastases were found.—*Actinomycosis Due to Nocardia Asteroides, W. M. M. Kirby & J. B. McNaught, with the technical assistance of G. S. Reeves, Arch. Int. Med., November, 1946, 78: 578.*—(*G. C. Leiner*)

Loeffler's Syndrome.—Pulmonary infiltrations with eosinophilia have been reported in association with trichinosis, chronic brucellosis, amebiasis and infestation with *Necator, Faciola hepatica, Ascaris* and *Strongyloides*. Two cases are presented to emphasize the fact that eosinophilia associated with pulmonary infiltrations may occur in coccidioidomycosis. The first patient developed fever, pulmonary infiltrations and an eosinophilia as high as 89 per cent. Subsequently adenopathy and pustules on the extremities and scalp appeared. Skin tests for coccidioidomycosis were positive. and biopsy revealed coccidioidomycosis, Clinical improvement, including decrease in pulmonary infiltrations, sedimentation rate and eosinophilia, followed treatment with "ball-mill coccidioides vaccine." The second patient complained of fever, sore throat, cough and, subsequently, developed pulmonary infiltration accompanied by enlargement of the mediastinal lymph nodes. The skin tests, complement fixation and precipitin tests were positive for coccidioidal infection. The eosinophilia improved with the clearing of the pulmonary infiltrations and the patient's blood count gradually returned to normal. The pulmonary infiltrations were present for sixty-seven days in the one case and forty-six days in the second.—*Pulmonary Infiltrations with Associated Eosinophilia, F. M. Willett & E. Oppenheim, Am. J. M. Sc., November, 1946, 212: 608.*—(*G. F. Mitchell*)

Pleuropulmonary Tularemia.—The effect of streptomycin therapy in 12 cases of pleuropulmonary tularemia was studied; an additional 3 cases were seen but not treated with streptomycin. In 8 of the 12 patients there was no history or physical evidence of a primary skin lesion. The commonly employed clinical division of tularemia with emphasis on portal of entry (ulcero-glandular, oculo-glandular) is considered somewhat arbitrary. In 2 patients, the possibility of infection through the ingestion of infected meat was suggested by the presence of pharyngeal ulcers and diarrhea. Five patients gave a history of contact with wood or dog ticks. This emphasizes the previously demonstrated fact that tularemia may be acquired by means other than the handling of infected tissues. Ten had bronchopneumonia and in 5 of these pleural effusions were demonstrated. There was one instance of additional acute pericarditis and one of pleural effusion with no demonstrable pneumonia. Diagnosis was based on a rising serum agglutinin titer against *P. tularensis* and, in 7 cases, by the isolation of the organism by animal inoculation. All of the patients responded to treatment in a remarkable manner. Fever usually declined within twenty-four hours and clinical improvement occurred even before decline of temperature to normal values. One patient died suddenly after apparent recovery; death was believed to be due to massive pulmonary embolism. Seven patients have been followed at intervals of from one to five months and have remained well. Animal inoculation of sputum and pleural fluid after therapy indicated that streptomycin resulted in a rapid elimination of the organism. Complete healing of lesions was comparatively slow and usually took several weeks. There was a rise in the serum agglutinin titer in all patients during or after treatment. This would seem to indicate that early treatment with the antibiotic does not prevent the development of acquired immunity. The drug was administered intramuscularly at four hour intervals in daily dosages ranging from 0.5 to 1.0 g. No relapses have been observed. These dosages are comparatively small and larger amounts are probably advisable in view of the possibility of the development of resistant organisms, although this was not observed in this series. Tularemia is often difficult to diagnose in the early stages in view of the late development of agglutinins. Isolation of the organism is hazardous and four to seven days may elapse before the animal dies. The author feels that streptomycin should be used early as a therapeutic test in any suspicious case even before the diagnosis is confirmed. Two days of treatment is usually sufficient to judge the response. The full course of treatment in this series ranged from five to nine days.—*Pleuropulmonary Tularemia: Observations on 12 Cases Treated with Streptomycin, J. S. Hunt, Ann. Int. Med., February, 1947, 26: 263.*—(*H. R. Nayer*)

Atypical Pneumonia.—In the established case, the roentgen opacity is homogeneous and translucent; early changes cause blurring of the bronchopulmonary markings; resolution is almost in reverse order, structural intensification being the last sign of previous parenchymal infiltration to disappear. By the routine use of the appropriate lateral projection of the chest in conjunction with the conventional film, it has been abundantly demonstrated that the infiltration of atypical pneumonia is segmental in type, the distribution being closely related to the zones supplied by the secondary branches of the bronchial tree. That the disease is one of bronchogenic origin is further attested by the frequency of minimal atelectasis and followed infrequently by secondary infection and bronchiectasis. The intralobar septa probably serve as limiting boundaries to the characteristic interstitial reaction. The disease should be considered as a confluent lobular pneumonia of segmental distribution.—*Primary Atypical Pneumonia, W. E. Crysler, Am. J. Roentgenol., September, 1946, 56: 324.*—(*J. E. Farber*)

Posttraumatic Pneumonia.—Posttraumatic pneumonia is defined as the type of pneumonia which follows trauma to the chest with the exception of pneumonias following penetrating

chest wounds. The pathogenesis of posttraumatic pneumonia is a vagal reflex causing spasm of the bronchial tree and bronchial hypersecretion resulting in pulmonary atelectasis. Of 73 patients with posttraumatic pneumonia, 28 had an intact thorax and 45 had fractures of the thoracic cage. There are three types of pulmonary injuries: those due to direct violence, to *contrecoup* and to 'pincer' forces in V-shaped spaces. The lesion occurring most commonly after direct violence is contusion of the parietal pleura. The lung below the incoming ribs may show varying degrees of subpleural ecchymosis. The typical *contrecoup* lesion is posterior. It consists of a hemorrhagic straight line corresponding to the angles of the ribs. The lesion due to pincer forces consists of contusion of the structures in the costophrenic angle caused by nipping of the lung between the lateral wall of the chest and the spleen or the liver. Cavity formation is common in extensive contusions, subpleural blebs are common in aircraft accidents. Traumatic pulmonary lesions at the onset of the pneumonia were more often present in patients with fractures of the thoracic cage. They were in order of frequency: contusion of the lung, hemothorax, pneumothorax, hemopneumothorax, subcutaneous emphysema and mediastinal emphysema. In 92 per cent of the patients pneumonia developed within six days of the injury. In 54 patients pneumonia developed only on the same side as the injury. Nine patients had bilateral pneumonia and 10 patients developed pneumonia on the *contrecoup* side only. The course and complications of posttraumatic pneumonia simulate those of mild to moderately severe primary pneumococcic pneumonia. Posttraumatic pneumonia can be prevented or minimized by the early treatment of all patients with injury to the chest for pulmonary atelectasis and potential infection. The intravenous administration of 0.0004 g. of atropine and of 0.03 g. of papaverine every four hours for two days after injury will relieve bronchospasm and hypersecretion. Prophylactic chemotherapy is indicated. Once posttraumatic pneumonia has developed chemotherapy should be intensified. Pleuritic pain should be relieved by local anesthesia. Expectorants, oxygen by inhalation have to be used as indicated.—*Pneumonia following Nonpenetrating Pulmonary Injuries, E. Philips, J. A. M. A., January 18, 1947, **133:** 161.—(H. Abeles)*

Lipiodol Pneumonia.—Three cases of bilateral basal pneumonia are reported, associated with urticaria and eosinophilia following the intrabronchial instillation of lipiodol. The importance of skin testing individuals with allergic backgrounds is stressed.—*A Pulmonary Reaction following Intrabronchial Instillation of Lipiodol in Bronchial Asthma, S. I. Kooperstein & H. E. Bass, Am. J. Roentgenol., November, 1946, **56:** 569.—(J. E. Farber)*

Pneumonia with Erythema Multiforme Exudativum.—Six cases of erythema multiforme exudativum with involvement of the mucous membranes were seen. Of these, 3 developed pneumonia. The cause of the disease is unknown. Blood, throat washings, vesicle fluid and material from the lung of a fatal case were injected into various animals and embryonated hen's eggs; no information as to the etiology of the disease was obtained. Pneumonia occurs probably more often in this disease than has been recognized. The pneumonia in these 3 cases was similar to primary atypical pneumonia. In 2 of the 3 cases cold hemagglutinins were found. In 2 of the 3 cases without pneumonia the same tests were made and were found negative.—*Association of Pneumonia with Erythema Multiforme Exudativum, Commission on Acute Respiratory Diseases, Fort Bragg, N. C., Arch. Int. Med., December, 1946, **78:** 687.—(G. C. Leiner)*

Mustard Gas Bronchitis.—Persons employed in the handling of mustard gas and exposed to small quantities of the gas over a prolonged period of time may sustain damage to the respiratory tract which may leave them partially or totally disabled. The authors studied 200 patients who, during their work in

an industrial plant, developed acute and chronic symptoms following exposure to mustard gas. Symptoms came on within three weeks to twelve months after onset of exposure. There are symptoms of irritation of the conjunctival and respiratory mucous membranes associated with dysphagia, anorexia, vomiting and weight loss. Symptoms improve following removal from the environment only to recur when the patient returns to the same work. After a number of episodes, it is necessary to remove the worker permanently from exposure to the gas. Residual symptoms persist in a considerable number; they are persistent hacking cough, wheezing and chest tightness most marked during damp weather. Such patients are hypersensitive to fumes or dust of any kind and may develop dyspnea on exertion to such a degree that they cannot perform any arduous labor. Roentgen findings range from minimal increase in bronchovascular markings to definite peribronchial thickening and patchy basal pneumonitis. Fifty-five out of 85 patients on whom lipiodol studies were done showed evidence of bronchiectasis ranging from minimal to extensive involvement of four lobes. The sedimentation rate is normal or slightly elevated; vital capacity is somewhat diminished. Diagnosis is based mainly on history and clinical findings. Treatment consists of removal from contact with fumes and dust, postural drainage, high fluid intake and expectorants. The effects of nebulized penicillin are being studied.—*Residual Mustard Gas Bronchitis: Effects of Prolonged Exposure to Low Concentrations of Mustard Gas, P. Morgenstern, F. R. Koss & W. W. Alexander, Ann. Int. Med., January, 1947, 26: 27.*—(*H. R. Nayer*)

Dextrocardia and Bronchiectasis.—Dextrocardia, secondary to fibrosis and retraction of the right lung has been known to occur both in fibroid tuberculosis and with bronchiectasis. The author reports such a case in association with the latter condition.—*Simulated Dextrocardia Associated with Bronchiectasis, S. A. Leader, Am. J. Roentgenol., December, 1946, 56: 743.*—(*J. E. Farber*)

Bronchiectasis.—The authors summarize their experience in the treatment of 390 patients with bronchiectasis. Pulmonary resection is the only permanent cure for this condition. Two hundred and twenty lobectomies were performed with only one death. In 5 patients, pneumonectomy was performed for disease involving the entire lung. Drainage, both postural and bronchoscopic, and various methods used in combating infection, including penicillin, are valuable as palliative and preoperative therapy. Patients who evidence only roentgen evidence of bronchiectasis and those who have only minimal symptoms are treated conservatively; those with disease of all five lobes are obviously too far advanced for radical cure. In the absence of any other medical contraindication, lobectomy is recommended for all other patients. As long as the right upper lobe and the upper aspect of the left upper lobe are free of disease and the cardio-respiratory reserve is adequate, bilateral resection should be considered. Where all the diseased tissue cannot be removed, removal of the more advanced bronchiectasis has resulted in considerable improvement. Preoperative studies should include bronchograms outlining all five lobes, bronchoscopy and bronchospirometric studies. A period of at least four to six weeks should elapse following bronchography to allow elimination of the oil to avoid postoperative pneumonitis. A one- to two-week course of intratracheal penicillin is valuable in patients with copious sputum. The operations have been done by individual ligation technique. In patients with copious sputum, early operative occlusion of the bronchus is important in preventing aspiration into the opposite lung. All pleuritic adhesions between the upper lobe and the chest wall are severed to permit adequate compensatory expansion. Closed intercostal drainage is maintained for forty-eight hours to permit effective drainage of serum and air. Bronchoscopic aspiration is performed on all patients immediately postoperatively. Temporary phrenic nerve paralysis is produced where high lingulectomy or middle lobe lobectomy is performed in combination with

removal of the lower lobes. Bronchospirometric studies performed on 26 patients postoperatively demonstrated that the function of the remaining pulmonary tissue on the operated side is dependent largely on the postoperative pleural reaction. Studies of function before and operation in a small group demonstrated that oxygen consumption and ventilation several months postoperatively were either slightly below normal values, or essentially the same or even improved over preoperative values. The latter effect illustrates the fact that blood flowing through bronchiectatic lobes is often inadequately oxygenated; when the diseased lobe is removed, blood can then only be circulated through alveoli that allow proper oxygenation.—*Surgical Treatment of Bronchiectasis, E. B. Kay, R. H. Meade, Jr. & F. A. Hughes, Jr., Ann. Int. Med., January, 1947, 26: 1.*—(*H. R. Nayer*)

Aerosol Penicillin.—This procedure used preoperatively caused a marked decrease in the amount of sputum, thus giving better assurance of a good anesthetic course. The patient was judged a good risk if he had no sputum after aerosol therapy for two weeks or the sputum was reduced to a small volume and remained so. The sputum of the different types responded in the following order; most rapid for tubular bronchiectasis, next for saccular bronchiectasis or an abscess cavity, and slowest for the cases with associated bronchial obstruction and atelectasis. Both cough and accompanying bronchitis were markedly improved. Concomitantly, postural drainage, bed-rest, raising of blood hemoglobin and proteins to normal levels, intramuscular penicillin and sulfadiazine should be used. Individualization of treatment is important. Pathological change must be evaluated fully so that duration and type of treatment can be tentatively prognosticated and outlined. Children are hard to evaluate as they may swallow sputum, and it is difficult to be sure that they take inhalation therapy efficaciously. Adults showed a uniformly good response to aerosol therapy and anesthetic courses were without complications.—*Aerosol Penicillin as a Therapeutic Adjunct in the Preparation of Patients with Suppuration of the Lung for Pulmonary Resection, C. W. Findlay & R. H. Sweet, J. Thoracic Surg., February, 1947, 16: 81.*—(*J. H. Cope*)

Interlobar Empyema.—This condition is a complication of pneumonia, metastatic infections, lung abscess or trauma and may occur as a primary infection. The characteristic history is pain on the affected side, fever, cough and dyspnea. Foul sputum may occur later in the disease and indicates rupture of the empyema into a bronchus. X-ray films in the anteroposterior and lateral views will localize the abnormal density in the interlobar fissure. Treatment is surgical.—*Interlobar Empyema, J. Levitin, Am. J. Roentgenol., August, 1946, 56: 156.*—(*J. E. Farber*)

Atelectasis after Surgery.—Airlessness of a part of all of a lobe or lung is a common postoperative complication. Evidence to allow its differential diagnosis did not appear until between 1914 and 1930. Complete bronchial obstruction is the one mandatory factor for its production; all others are predisposing or favoring factors. Bronchial obstruction may be produced in three ways: reflex bronchospasm, swelling of the bronchial mucosa, or a plug of secretions or aspirated material. The first two modes are rare, but the third is common. A viscid plug of mucus, which is allowed to remain because of hypoventilation, or not expelled by the cough reflex, ciliary action or bronchial peristalsis, is the major factor. The numerous factors which may predispose to atelectasis can be classed in two groups: (*1*) factors associated with hypoventilation (including location and type of operation, elevation of diaphragm, reduced excursion of diaphragm, lowered vital capacity, increased intrapleural pressure, air beneath the diaphragm, severity of operation, amount of postoperative pain, muscle spasm and splinting, obesity, intraäbdominal complications, abdominal binders, sedatives and hypnotics before and after operation, posture, old age, debilitating conditions, poor operative risks,

sex, straining respirations, anesthesia and surgical technique); (2) factors associated with the formation of bronchial plugs (including preëxistent pulmonary disease, hypersecretion of saliva and tracheobronchial mucus, preoperative use of atropine, aspiration of material from the mouth, pharynx and nasopharynx and ineffective cough). Operations on the abdomen, especially in the upper part, cause hypoventilation in porportion to the severity of the operation and the amount of pain. Obesity and gas in the bowel reduce the vital capacity, as does an abdominal binder. Opiates and barbiturates decrease pulmonary ventilation, and opiates depress the cough reflex and ciliary action (a dangerous action in smoker's bronchitis). Most static positions embarrass the ease of breathing. The male sex is the more susceptible to atelectasis, because of the tendency to abdominal type of breathing. Inhalation anesthesia (spinal anesthesia is a more common cause) acts by diminishing body tonus. A specific irritating effect of cyclopropane is disputed. The incidence of respiratory complications varies directly with the depth and duration of anesthesia. The lungs should be ventilated with air after anaesthesia, since oxygen, carbon dioxide and anesthetic gases are absorbed much faster from the alveoli than air. Preoperative pulmonary inflammation is not a necessity for the production of collapse, but may help by increased secretion. The effect of atropine is uncertain; it is possibly beneficial. Careful anesthetic and surgical technique decrease the hazard to the lungs. Aspiration of material from the upper respiratory tract is a most important factor in obstruction and atelectasis. When obstruction has occurred, the plug must be expelled by cough or evacuated by bronchoscopy. If this is not possible, the fate of the lung tissue depends on the type of bacteria present. Pneumococcus type IV will not usually change the atelectasis. If the bacteria are virulent, they may cause a pneumonia. Certain organisms from the mouth may cause lung abscess.—*The Pathogenesis of Postoperative Atelectasis, C. J. Vedrenne, New Orleans M. & S. J., November, 1946, 99: 220.*—(*W. H. Oatway, Jr.*)

Middle Lobe Atelectasis.—Atelectasis of the middle lobe occurs more often than atelectasis of other lobes because of the peculiar anatomy of the middle lobe bronchus. This bronchus is relatively narrow; it leaves the main bronchus at an acute angle; therefore, the bronchus is easily compressed or kinked by lymph nodes near its origin. In the upper and lower lobes usually smaller bronchial branches only are affected and atelectasis of small central parts of the lung results. The comparatively frequent stenosis of the middle lobe bronchus produces atelectasis of the entire middle lobe. Secondary inflammation behind the stenosis resulting in induration with or without bronchiectasis is common. Two cases of middle lobe atelectasis caused by calcified lymph nodes are described. In the last few years bronchial stenosis due to large lymph nodes has been seen frequently in adults, possibly due to the poor nutrition and living conditions of the population.—*Der Mittellappen als Punctum minoris resistentiae der Lunge, E. Zdansky, Wien. klin. Wchnschr., April 19, 1946, 58: 197.*—(*G. C. Leiner*)

Silicosis in Metalliferous Mining.—The decennial supplement of the Registrar General of England reveals that the occupation with the highest standardized mortality ratio among males 20 to 65 is "tin and copper mining below ground." The third highest is "other metalliferous mining below ground," and the fifth is "slate mining and quarrying." The development of silicosis is often insidious, but the onset of symptoms is often abrupt. The immediate cause of death is often congestive heart failure or bronchopneumonia. During the past fifteen years, medical supervision under the direction of Craw has been carried out in the hematite miners in Cumberland, with great success. He claims that no miner who has entered the mines in that period has developed any signs of dust diseases of the lungs. This has been achieved by careful

selection of the men, repeated examination and routine chest skiagraphy. Early cases of tuberculosis are identified and removed.—*Silicosis and Metalliferous Mining in England, Brit. M. J., November 16, 1946, 4480: 743.—(R. W. Clarke)*

Pneumonoconiosis.—The study includes the results of many hundreds of clinical examinations and of 592 necropsies of certified silicotics among South Wales anthracite miners. Slighter grades of the disease often produce no symptoms. The chief symptom is dyspnea of gradual development. Cough is variable and is often absent in uncomplicated cases. Sputum is slight or absent. Black "spit" indicates the presence of breaking-down pulmonary lesions. Pain is absent if there is no pleurisy. Fever and wasting are found only if there is infection. Physical examination often reveals reduced pulmonary expansion, impairment of percussion note, slightly prolonged expiratory sounds and sometimes râles. Symptoms are severe and abnormal physical signs are slight. Necropsy shows the lungs to be adherent, especially the upper lobes, emphysema and areas of black fibrosis, varying from small discrete nodules up to large areas of consolidation. The nodules in those patients exposed to dust with high silica content are harder and more sharply demarcated. The nodules often crumble and excavate; the cavities contain milky black material. The regional nodes are enlarged, fibrotic and anthracotic. Tuberculosis is very frequent among silicotics. It is questionable whether this is so in the pneumonoconiosis of hard-coal miners. About 25 per cent of the author's own cases had tuberculosis. This did not include the cases with crumbling which many pathologists regard as tuberculosis. All patients with wasting had crumbling or tuberculosis; the converse was not true. The distribution of lesions was asymetrical and irregular. Gross bullous emphysema was found in 104 of 230 cases. Pneumothorax was occasionally present. Nontuberculous respiratory affections, chiefly pneumonia, were found in one-fifth of the cases. Heart failure was the most frequent cause of death. It was manifested by right-sided failure or terminal pulmonary edema. There was only one case of carcinoma. The cause of death was tuberculosis in 26 per cent, nontuberculous respiratory affections in 18 per cent, cardiac failure in 37 per cent and unrelated conditions in 19 per cent. Many patients with advanced silicosis and most patients in the early stage of the disease survived for many years unless they also had tuberculosis. Prevention among workers in hard headings consists of watering everything and of using a ventilating current to remove dust. At the coal face, dust is harder to eliminate. The use of aluminium is not helpful. Tuberculous individuals should be kept out of the mines. There is no special treatment.—*Pneumonoconiosis in South Wales Anthracite Miners, C. G. Gooding, Lancet, December 21, 1946, 2: 891.—(A. G. Cohen)*

Disability in Dust Diseases.—The assessment of the amount of disability in dust diseases of the lungs is difficult. No satisfactory method is available. X-ray evidence is inadequate, as illustrated by the nodulation caused by iron oxide in siderosis and that caused by silicosis. Methods such as comparing the lung fields in X-ray films on inspiration and expiration, exercise tests, oxygen content of blood, blood sedimentation rates and vital capacity and residual air have been used. Vital capacity is probably the best guide of the easily performed tests. When the ratio of $\frac{\text{residual air}}{\text{total capacity}}$ exceeds 40 per cent, some degree of impairment is usually apparent. It is hoped that satisfactory methods for assessment of pulmonary disability in pneumonoconioses will be found.—*Assessment of Disability in Dust Diseases of the Lung, Brit. M. J., August 31, 1946, 4469: 301.—(R. W. Clarke)*

Foreign Body in Lung.—A 31-year-old patient was hit by an exploding mine and a bean-sized particle entered his right lung. An ab-

scess developed. Medical treatment (salvarsan-, alcohol-injections) was ineffective. Under local anesthesia and fluoroscopic control a wooden sliver, measuring 5 by 10 mm., was removed through an opening made at the site of the scar in the second and third intercostal spaces. In a second session, eleven days later, the metal foreign body was removed. A catheter was inserted into the cavity and Monaldi's suction drainage was instituted. Five thousand units of penicillin were instilled through the catheter into the cavity on four successive days. The general condition of the patient improved rapidly.—*Fremdkörperentfernung aus der Lunge, K. Domokos, Wien. klin. Wchnschr., November 8, 1946, 58: 675.—(G. C. Leiner)*

Chest Tumor Registry.—The functions of the registry are outlined: to receive cases in a specific category, to review diagnoses and obtain consultation on the pathology of difficult cases, to process all material so that it will be available for study and research, and to conduct follow-up studies so that histories will be complete. The chest tumor registry is one of 14 sponsored by the National Research Council. Registering cases still allows the surgeon to do as he wishes with cases and case records. His permission is obtained whenever his case report is used. The advantage is that this is a permanent record, not dependent on changing personnel or policies. Operative reports and X-ray films are necessary for registration. Practically all specimens from all thoracic cases from the Army are registered. The Veteran's Service is registering all available cases. The Registry also has available illustrative material such as photographs, drawings and moving pictures of clinical subjects and operative procedures. Information may be secured by contacting the Army Institute of Pathology, Washington 25, D.C.—*The Chest Tumor Registry, J. E. Ash, J. Thoracic Surg., February, 1947, 16: 12.—(J. H. Cope)*

Spread of Neoplastic Cells through Bronchi.—The possibility that tumors may spread by way of the respiratory passages has been reported but there has been no experimental work verifying this assumption. The presence of mucus and the ciliary motion of the lining epithelial cells were believed to preclude such spread. A recent study of viruses in mice necessitated intranasal instillation of material containing cells from lung tumors. Unexpectedly, this resulted in the development of further lung tumors and this finding led to the experiments to be described. A few droplets of a suspension of suitable neoplastic cells were instilled into the nostrils of small groups of healthy young mice under light ether anesthesia. In several instances the instillation was repeated after five to twenty-four hours. All mice were highly susceptible to subcutaneous implantation of the tumor cells. One strain of lung carcinoma, 3 strains of lymphoid leukemia and 2 strains of myeloid leukemia were used. Twenty-five out of 50 of the mice receiving carcinoma cells, 15 of the 17 receiving lymphoid leukemia, and 11 out of 16 receiving myeloid leukemia gave positive "takes". The carcinoma cells produced progressively growing tumors in both lungs, but at time of death metastases were limited to the regional lymph nodes. One strain of malignant lymphocytes produced systemic disease without leaving any mark at the point of entry into the circulation. Leukemic cells of 4 other strains (2 myeloid and 2 lymphoid) produced tumor-like pulmonary infiltrations, with a spread to regional lymph nodes terminating in generalized leukemia. It is apparent that the epithelial surfaces of the respiratory tract are not safe barriers against the dissemination of neoplastic cells.—*Experiments on the Spread of Neoplastic Cells through the Respiratory Passages, J. Furth, Am. J. Path., November, 1946, 22: 110.—(J. S. Woolley)*

Morphology of Lung Carcinoma.—The correlations between clinical manifestations and morphology of pulmonary carcinoma was studied on 26 cases of resection; 25 of these cases were males, almost one-half of them in the age group between 40 and 50 years, and about the same number were heavy smokers.

Cough, chest pain and hemoptysis constituted the most frequent symptoms. The course of illness lasted from two months to three years. The diagnosis was made in most of the cases on the basis of clinical and roentgenological signs; bronchoscopic examination was helpful in the diagnosis of 4 cases, sputum inclusions in 2 cases and aspiration biopsy in one case. Fifteen pneumonectomies were performed, 9 of them for the right lung and 6 for the left lung; in 11 cases lobectomy was done, 9 times on the right side and twice on the left side. A free pleural cavity was found in 14 cases, adhesions were present in 12 cases. The surgical exploration of the hilar lymph nodes showed metastasis in 3 cases out of 9. Circumscribed tumors were observed in 21 cases: on 4 occasions the tumor was found in the parenchyma; in 16 cases it was peripherally located and in one case the site of the tumor was in a main bronchus. Histological examination revealed 4 per cent undifferentiated small cells, 36 per cent adenocarcinomata and 24 per cent epidermoid carcinomata. Trabecular type of carcinoma was found in 12 per cent and atypical carcinoma in 12 per cent. Fourteen patients died within one month after the operation; postmortem examination in 12 of them showed only 2 cases of distant metastasis and one case of invasion of the thoracic wall. Thus the indication for surgery was justified in 75 per cent of the cases; 8 patients died one month to seven months after the intervention; death was due in all to metastasis. Four patients were alive and showed no evidence of metastasis five months to sixteen months after the operation. In June 1946, 2 patients were alive, both for periods longer than two years and neither of them manifested metastasis; one of them had an adenocarcinoma and one an epidermoid cell carcinoma. There was no clear correlation between the apparent onset of the disease and the moment of the resection: surgery performed in apparently early cases often proved to be too late. This is due to the fact that the lapse of time between the real onset of the neoplasm and the first clinical symptoms is unknown. The late results of surgical treatment depend on the location, morphology and histological type of the tumor. The secondary alterations accompanying lung carcinoma are determined by the location and the development of the tumor. The majority of the tumors removed by surgery originated in medium-sized and smaller bronchi. The opinion is expressed that the mass radiography of the chest will reveal a larger number of lung carcinomata amenable to resection.—*Morfologia del cancer pulmonar, J. A. Taiana, Prensa méd. argent., October, 1946, 33: 2051.*—(*L. Molnar*)

Pancoast Tumors.—In 10,209 autopsies done at the Kaiser Franz Joseph Hospital in Vienna between 1933 and 1942, 302 cases (2.9 per cent) of bronchogenic carcinoma were seen; of these, 43 (14.2 per cent) showed localization in the periphery of the lung; 12 of these were found in the apical region. In only 2, the typical symptoms of a Pancoast tumor had been present. In addition to these 2, 5 cases of bronchogenic carcinoma of the upper lobe showed extension of the tumor to the thoracic wall, partly with rib destruction. The symptoms described by Pancoast may also be found in other diseases with localization in the apex, such as metastases of malignant tumors, tumors of the pleura and of the sympathetic ganglia, Hodgkin's disease. The differential diagnosis between Pancoast tumor and tuberculosis is frequently difficult.—*Ueber Lungenspitzenkarzinome und Tumoren der oberen Lungenfurche (Pancoast-Tumoren), O. Wichtl, Wien. klin. Wchnschr., May 3, 1946, 58: 228.*—(*G. C. Leiner*)

Bronchial Adenoma.—Dr. Overholt's material since 1933 showed 305 cases of histologically proven carcinoma and 12 cases of bronchial adenoma. Bronchial adenoma thus represented only 3.9 per cent of the carcinomata, but, while only 87 of these latter were considered amenable to surgical treatment, all 12 cases of bronchial adenoma were successfully treated by resection. The ratio between males and females was 3.8 to 1 in the case of carcinoma and 1 to 1 in the case of

bronchial adenoma. In most of these cases there were signs of invasion of the adjacent tissues and in some cases also of the regional lymph nodes. Distant metastases were not observed and the clinical course also supported the belief that these tumors do not represent true malignant tumors. The onset of the disease is insidious. The first symptoms are usually unproductive cough, later followed by dyspnea and abundant hemoptisis. At later stages phenomena of bronchial obstruction dominate the picture. The diagnosis is suggested by the clinical history; occasionally there is roentgenological evidence of the tumor, but the X-ray film most often shows only secondary pulmonary changes. Bronchography reveals filling defect, or bronchiectasis distal to the tumor. Bronchoscopy is the most important diagnostic procedure; biopsy is sometimes dangerous because of the profuse hemorrhage; another set-back of bronchoscopic examination is that the extrabronchial portion of the tumor cannot be seen. The histological picture of bronchial adenoma is characterized by the absence of mitotic figures and by the tendency of the tumor cells to appear in groups. The pathological diagnosis is by no means easy: it sometimes occurred that the same specimen was variously diagnosed by experienced pathologists. Radium therapy, followed by bronchoscopic insertion of radium and electrocoagulation failed to cure one of the patients of this series. Bronchoscopic extirpation of the tumor is dangerous and ineffective. Pulmonary resection, pneumonectomy in 8 cases and lobectomy in 4 cases, proved to be curative in these cases. —*Adenoma bronchial, estudio de 12 casos tratados por reseccion pulmonar, F. E. P. Tricerri, L. Langer & E. Naclerio, Prensa méd. argent., November, 1946, 33: 2207.*—(*L. Molnar*)

Pulmonary Adenomatosis.—Multiple adenomata involving four lobes of the lungs in a 56-year-old woman was complicated by repeated attacks of lobar pneumonia, leading to death.—*Pulmonary Adenomatosis Complicated by Lobar Pneumonia, C. M. Alexander & Foo Chu, Arch. Path., January, 1947, 43: 92.*—(*E. Bogen*)

Primary Lung Cancer.—A brief review and plea for early diagnosis and pneumonectomy. —*Le cancer primitif du poumon, R. Desmeules, Laval méd., January, 1947, 12: 58.*—(*E. Bogen*)

Chylothorax.—A case of traumatic chylothorax is described. A soldier developed emphysema and a left hemothorax following a chest injury. An exploratory thoracotomy revealed a foreign body in the posterior thoracic wall in the angle between the subclavian artery and the arch of the aorta. Within forty-eight hours following removal of the foreign body the patient developed a large chylothorax; 1,000 cc. of chyle were removed each day for a week; then accumulation of fluid rapidly diminished.—*Traumatic Chylothorax Resulting from Battle Injury, W. H. Berry, J. A. M. A., February 1, 1947, 133: 319.*—(*H. Abeles*)

Pleural Calcifications.—The number of cases of pleural calcifications are such that they are no longer considered a rarity. X-ray films permit studies of their position, form, dimensions and even their structure. Particularly important in their etiology is thoracic trauma associated with hemothorax. Other causes may be sero-fibrinous pleurisy, therapeutic pneumothorax and purulent pleurisy. Few symptoms may suggest pleural changes: bronchitis, emphysema or chest pain, usually vague, which enables one to discover pleural calcifications during the course of roentgen examination. Frequently these symptoms are unrelated to the presence of the calcifications. The silence of these lesions contrasts notably with the severe pain caused by the needle, during an exploratory puncture, coming in contact with an area of such hardness as to suggest contact with a rib rather than an intercostal space. Two films are of value in the study of these lesions: one to demonstrate the broad surface of the calcification, the other to

show its outline in profile. Diagnosis of such shadows is usually easy because their density exceeds that of parenchymal markings. They are rarely homogeneous, usually only their borders are clear-cut and very opaque, the central areas appearing areolar or fenestrated with linear opacities delimiting round or oval areas. Two sites of predilection for pleural calcifications are: the costovertebral gutter and the axillary region; less frequently, the anterior chest or diaphragmatic areas. Tomographic studies permit topographical localization; discovery of perhaps more than a single lesion when several shadows are superimposed on a standard film. Pleural calcifications also may mask a subjacent pulmonary lesion, which would be missed without body-section serial films. A case history is given in which honeycombing in the right lung was hidden by a pleural calcification in the standard film; tomograms demonstrated the otherwise invisible intrapulmonary lesions. Another case history is given to illustrate how the area of central rarefaction in a pleural calcification may be mistaken for an intrapulmonary cavity without recourse to laminagraphic studies in doubtful cases.—*De l'intérêt de la tomographie dans les calcifications pleurales, J. Olmer, F. Santamaria & M. Lallemand, Presse méd., December 25, 1946, No. 63, 852.*—(*P. Q. Edwards*)

Intrapulmonary Air Pressure.—This paper endeavors to present the importance of having an intimate knowledge of the dynamics of the pulmonary circulation, of the anatomy and physiology of the air sacs and the circulation within the pulmonary capillaries.—*Intrapulmonary Air Pressure and Its Relation to Pulmonary Capillary Flow, W. W. Wasson, Am. J. Roentgenol., May, 1946, 55: 575.*—(*J. E. Farber*)

Erythema Nodosum.—In tuberculosis, erythema nodosum generally appears when the pre-allergic phase passes into the allergic phase; erythema nodosum and tuberculin conversion are considered to be parallel phenomena. In some cases, the former occurs in later stages of tuberculosis, and the combination of erythema nodosum and negative tuberculin reaction is not uncommon. It occurs in some usually tuberculin-negative tuberculous manifestations and in cases in which the erythema is caused by organisms other than the tubercle bacillus, e.g. the streptococcus, or in rheumatic fever. Negative tuberculin reactions may be due to sarcoidosis. In this disease which many investigators regard as a special form of tuberculosis, so-called positive anergy exists. The fact that bacilli are usually not demonstrable in the tissues, combined with tuberculoid structures without caseation, is evidence of hyperergy. Thus it is not surprising that erythema nodosum can appear as an allergic skin reaction in sarcoidosis. In 1945, 10 tuberculin-negative patients with erythema nodosum were observed. Lemming found that in sarcoidosis the tuberculin reaction remains negative even after BCG vaccination. This is evidence for the tuberculous etiology of the disease. Skin lesions appearing at the site of the vaccination and enlarged regional lymph nodes present the histological picture of sarcoidosis. Biopsies of such post-vaccination lesions have in a number of cases lent strong support to the diagnosis. In 5 of the 11 cases reported this procedure favored the diagnosis of sarcoidosis. This diagnosis is considered to be well established in cases with bilateral hilar adenitis, negative tuberculin reaction after BCG vaccination and with the histological picture of sarcoidosis in the post-vaccination lesions.—*Tuberculin-Negative Cases of Erythema Nodosum or Erythema Exudativum Multiforme, O. Forsman, Acta med. Scandinav., 1946, 126: 393.*—(*O. Pinner*)

Amyloidosis of Lungs.—A proved case of primary amyloidosis is presented, involving mainly the lungs, mediastinum, lymph nodes and spleen. Roentgenographic characteristics include enlarged bilateral hilar densities and a linear and finally nodular peritruncal infiltration widely disseminated in the paren-

chyma of the lungs. In the light of autopsy findings these roentgenographic changes are due to the deposition of fibrous tissue and amyloid material in the lungs, hila and mediastinum.—*Primary Amyloidosis of the Lungs, P. R.Dirkse, Am.J.Roentgenol., November, 1946, 56: 577.*—(*J. E. Farber*)

Pulmonary Infarcts.—At the Massachusetts General Hospital pulmonary infarction has been one of the two most common postoperative complications. Early recognition of infarcts is of extreme importance since the condition may be the first sign of massive fatal embolism and since certain preventive measures against the condition are now available. Proper technique of roentgen examination to demonstrate the infarct includes fluoroscopy, spot films and X-ray films in both posteroanterior and lateral projection. The size of an infarct varies from a small thin lesion to a large almost lobar area. The shape is dependent on its location but it is always peripheral with its long dimension lying parallel to the pleura. An infarct is at first indistinct, later more sharply circumscribed assuming a linear shape, finally a very thin linear scar. Approximately 75 per cent of infarcts occur in the lower lobes.—*The Technique of the Roentgenologic Demonstration of Pulmonary Infarcts, L. L. Robbins, Am. J. Roentgenol., December, 1946, 56: 736.*—(*J. E. Farber*)

Lobectomy.—A total of 196 consecutive operations are reported with one death (the fourth case) (the number has since been increased to 236 without further mortality). All patients except 4 were under 40 years, and most were under 30. Lobectomy was performed in bronchiectasis, pulmonary cyst, chronic suppuration, bronchial adenoma, adenomatosis, tuberculosis, neurogenic sarcoma and actinomycosis. Bilateral lobectomy for bronchiectasis was performed in 4 patients. A fifth that had previously had right lower and middle lobes removed, had lingula and left lower removed. Preoperative penicillin was used by all routes plus postural drainage and bronchoscopic aspirations in indicated cases. Intratracheal anesthesia was used in all cases. Individual ligation was used after the first 2 cases. All patients were bronchoscoped immediately after surgery. Closed drainage with a water-trap was used on all cases and usually discontinued after two days. Intranasal oxygen was routine, but discontinued usually after twelve hours. Maintenance of a clear airway was the most imperative postoperative feature done by means of intratracheal, transnasal suction till patient could cough actively. Early movement was insisted upon. Patients were fully ambulatory by the end of a week. Phrenic paralysis was induced in the majority of patients after full aeration of the remaining lung, to diminish pull on bronchial stumps with unsatisfactory pleural covering, and to aid in relief of deep seated pain and tightness in the chest. Complications occurred in 27 cases. Empyema accounted for 15. Jaundice of undetermined origin occurred in 7. Pneumothorax several weeks after operation occurred in 2. Atelectasis requiring bronchoscopy developed in one, and cerebral embolism followed by recovery was encountered in one. One patient died twenty hours after right lower lobe lobectomy for bronchiectasis, from cerebral and pulmonary edema.—*A Report of One Hundred Ninety-six Lobectomies Performed at Kennedy General Hospital Chest Surgical Center from 1943 to 1946, with One Death, R. H. Meade, Jr., E. B. Kay & F. A. Hughes, J. Thoracic Surg., February, 1947, 16: 16.*—(*J. H. Cope*)

Pneumonectomy in Childhood.—This is a follow-up on 3 previously reported cases which were first studied during growth period. These patients have now attained their complete growth and one case is added to the report. The technique of catheterization of the right heart has been added to the study for a better evaluation of the state of the lesser circulation and the cardiopulmonary functions. The method used consisted in the study of the pulmonary volumina, the ventilatory efficiency, the efficiency of alveolar

gas exchange and the gases in the arterial blood at rest and during a moderate and exhausting type of exercise. The right ventricular pressures and the pulmonary blood flow were measured in 3 of the 4 subjects under basal conditions. In 2 patients who developed a moderate degree of pulmonary distention, the only significant findings were a reduction in breathing reserve, and a marked degree of oxygen unsaturation of the arterial blood, brought about by very strenuous physical exercise. The moderate degree of pulmonary distention which increased slightly in one person during the growth period of his lung, did not progress in the last three years. The performance of one subject, who did not show any evidence of pulmonary distention was the same as that of a normal individual. No significant degree of hypertension of the lesser circulation has developed as yet.—*A Follow-up Study of the Cardiopulmonary Function in Four Young Individuals after Pneumonectomy, A. Cournand, A. Himmelstein, R. L. Riley & C. W. Lester, J. Thoracic Surg., February, 1947, 16: 30.*—(*J. H. Cope*)

Addison's Disease.—Five cases in Negroes are reported. Two of the patients volunteered the information that their skins had recently become darker particularly over the forehand, back of the hands, elbows and about the nipples. Patchy pigmentation of the buccal mucous membranes is common in Negroes, but large areas of pigmentation on the dorsal surface of the tongue was seen in 2 of the patients reported. The classical triad of asthenia gastro-intestinal symptoms and hypotension, when present, should suggest the diagnosis. Many cases recognized have probably not been reported. Many cases probably have not been recognized, for among the cases reported here, 3 were diagnosed clinically and 2 at autopsy, while in the cases reported in the literature 12 were diagnosed clinically and 9 at autopsy. If the ratio of Negro to white patients admitted were taken seriously it would suggest that Addison's disease occurs 4 times more frequently in Negroes than in the white, registered at the University Hospital. Tuberculosis of the adrenal glands was found in all the cases reported in the literature in whom a pathological examination was made. Among all the 20 cases of Addison's disease so studied, 95 per cent were found to be due to tuberculosis and 5 per cent to amyloidosis. Idiopathic atrophy of the adrenal cortex, now accounting for 50 per cent of all cases in whites, has not been reported in the Negro.—*Addison's Disease in the Negro, J. W. Conn & K. P. Mathews, Am. J. M. Sc., October, 1946, 212: 404.*—(*G. F. Mitchell*)

Thoracic Tumors.—Of 746 patients seen at a Navy Hospital designated for neoplastic disease, 33 patients had thoracic tumors judged suitable for surgery; 24 were benign and 9 were malignant. The average age of the patients was 28; all were males. Twenty-three tumors were asymptomatic and were picked up on routine X-ray examination. Five of these were malignant. Ten mediastinal tumors were excised, 9 exploratory thoracotomies were done, 4 total pneumonectomies, 4 lobectomies and 3 chest-wall tumor excisions were done. No postoperative deaths occurred.—*Surgical Thoracic Tumors in Navy Personnel, W. L. Watson & H. D. Diamond, J. Thoracic Surg., February, 1947, 16: 1.*—(*J. H. Cope*)

Ether Anesthesia.—Ether is safe when used in a closed system with a high concentration of oxygen in major thoracic surgical procedures. Endotracheal catheters are essential for maintenance of a clear airway for frequent endotracheal aspiration and for administration of positive pressure when needed. The use of endotracheal catheters and inflatable cuffs produced no harmful effects. Continuous positive pressure anesthesia was not required. Intermittent positive pressure is essential. All deaths related to anesthesia occurred in centres where controlled respiration was carried out routinely during anesthesia. Reëxpansion of collapsed pulmonary tissue for the purpose of preventing

pneumothorax can be safely carried out using measured positive pressure at the termination of the operation. Uninvolved lung tissue should be reëxpanded frequently during the course of the operation in an attempt to minimize the dangers of postoperative atelectasis and to assist the surgeon in locating lines of demarcation. Whole blood transfusion during surgery will usually prevent shock. Immediate postoperative bronchoscopy with aspiration and X-ray examination before patient leaves the table will reduce pulmonary complications. Fluids intravenously in pulmonary resection should be given sparingly, especially during surgery and in the immediate postoperative period, for pulmonary edema may result. Many different types of anesthetic agents have been used in thoracic surgery during, and since, World War I. With the advent of carbon dioxide adsorption and endotracheal anesthesia thoracic surgery has become much safer. The large series of thoracotomies performed, including 559 lobectomies and 109 mediastinal tumors under ether-oxygen maintenance anesthesia indicates the safe character of this anesthetic agent.—*Anesthesia for Thoracic Surgery in the United States Army, L. H. Mousel, J. Thoracic Surg., February, 1947, 16: 91.*—(*J. H. Cope*)

Surgery in Myasthenia Gravis.—In 32 cases of *myasthenia gravis*, thymus tumors were found in 15, and no tumor in 17, that is in those cases that were operated. It is concluded that thymectomy was of enough value in the treatment of *myasthenia gravis* to warrant surgery in all cases with severe or progressive disease and when the patient's condition permits. The sternum-splitting incision was used. Preoperative preparation with neostigmine is essential, with attention to nutrition, and hospital rest with preoperative penicillin. Neostigmine, penicillin and oxygen should be given as routine postoperative medication. Intratracheal suction and a respirator must be immediately available. The postoperative course is unpredictable but patients are usually ready for discharge in ten to fourteen days.—*Surgical Treatment of Myasthenia Gravis, O. T. Clogett & L. M. Eaton, J. Thoracic Surg., February, 1947, 16: 62.*—(*J. H. Cope*)

Curare in Anesthesia.—This technique requires preoperative medication of a short acting barbiturate, morphine and scopolamine. Nitrous oxide and oxygen were started on operating table. When anesthesia and adequate air were assured, 200 mm. of curare were given intravenously. Controlled respiration was used for about five minutes till maximum relaxation was attained. An endotracheal tube was then inserted. The same concentration of nitrous oxide and oxygen required for good oxygenation before curare must be continued, as the usual signs of anethesia are completely masked. Curare was used in children in calculated dosage with good effect. Additional curare is given during anesthesia to produce apnea as desired. Patients were awake and able to answer questions before leaving the operating table. Muscular weakness persists for several hours and careful after-treatment is necessary. The advantages are that there is no explosive mixture used, so the electrocautery is safe. The patients remain in excellent condition through many hours of surgery and still are awake by the time they reach the ward. The average date of ambulation and discharge indicates how little the anesthesia upset the patients, the days being the second and fourteenth, respectively. Eight deaths occurred, of which 2 may have been due to some influence of the anesthetic.—*The Use of Curare in Anesthesia for Thoracic Surgery, H. B. Stephens, P. Harsoun & F. E. Beckert, J. Thoracic Surg., February, 1947, 16: 50.*—(*J. H. Cope*)

Epidemic Myalgia.—Bornholm disease, often seen in benign and variable epidemic form throughout many countries, is also known as contagious epidemic muscular rheumatism, epidemic pleurisy, epidemic myalgia, pleurodynia, Devil's grip or *Sommerfieber*. Sylvert, in Denmark, who has observed almost 100 cases during two epidem-

ics, one in the Baltic island of Bornholm, the other in Copenhagen, characterizes the disease as follows: It occurs only between May and September, with children and young adults being largely affected. The onset is usually abrupt with aching pains. These pains are usually localized in the pectoral or upper abdominal muscles, less frequently in the shoulder or lumbar muscles. The affected muscles become indurated or nodular with hypersensitivity to touch and contraction. General symptoms, such as fever, sweating and headache, are usually moderate; myalgia and fever may persist for two or three days, but often, after a twenty-four-hour respite, symptoms may recur with the myalgia in a different group of muscles. The disease is almost always benign and results in complete cure. Possible complications include dry or serous pleurisy, pericarditis, otitis media, bronchitis, pneumonia, orchitis or even encephalitis. Epidemic characteristics of the disease are clear, spreading by direct contact. The incubation period varies from two to four days; etiology is unknown. Diagnosis is based upon recognition of the epidemic character of the disease; even the pleuropneumonic aspect of the disease, when associated with the characteristic myalgias in the presence of an epidemic, should be recognized as part of the same process. Abrupt onset of muscular pain, without antecedent history of other disturbances, should make one think of Bornholm disease; children are often stricken suddenly by pain in the midst of play. Blood studies offer no diagnostic aid. Differential diagnosis includes rheumatic myositis, in which joints are involved, poliomyelitis with its spinal fluid changes, meningitis may be confused when the myalgias are in the neck, but diagnostic changes in the spinal fluid and clinical picture are evident; benign serous meningitis may be similarly differentiated. Treatment of the disease is symptomatic. — *Forme pleuropulmonaire et pseudopéritonéale de la myalgia épidémique, R. Bogaert, Presse méd., December 28, 1946, No. 64, 881.*—(*P. Q. Edwards*)

Antihistamine Substances.—The effect on vital capacity of standard intravenous doses of histamine was quantitatively established in selected asthmatic subjects. It was found that, although in a given subject there could be variation in response to the same dose of histamine from time to time, depending on the severity of the asthmatic state, at any given time closely similar quantitative responses to consecutive doses of the same amount of the drug could be elicited. The response consisted of temporary decrease in vital capacity, attributed to bronchoconstriction. The special features of the response were time of onset, maximum decrease reached and duration of effect. Following this, antihistamine drugs were administered and the effect on subsequent intravenous doses of histamine noted. In a typical experiment, the maximum decrease in vital capacity caused by histamine was 1789 cc. Following 10 mg. benadryl intravenously, the response to the same dose of histamine as previously used was 721 cc. After 30 mg. benadryl intravenously, the return to the control response to histamine was delayed over three and one-half hours. Pyrabenzamine hydrochloride, in 3 subjects, gave no consistent protection against histamine. Theophylline with ethylenediamine intravenously administered gave marked protection. Epinephrin in doses as low as 0.1 cc. of a 1:1000 solution gave marked protection which lasted one hour. Ephedrine intramuscularly gave satisfactory protection, delayed in onset but prolonged in duration. In one subject atropine gave moderate protection against histamine.—*The Action of Histamine on the Respiratory Tract in Normal and Asthmatic Subjects, J. J. Curry, J. Clin. Investigation, November, 1946, 25: 785; and The Effect of Anti-Histamine Substances and Other Drugs on Histamine Bronchoconstriction in Asthmatic Subjects, J. J. Curry, J. Clin. Investigation, November, 1946, 25: 789.*—(*A. A. Cohen*)

Transmission of Leprosy.—The exact manner of transmission of leprosy is still unknown. Sixty per cent of the author's native patients

(Southern Rhodesia) and some 16 European patients had never been in contact with the disease. Close and intimate contact does not explain transmission of the disease. Suspicion fell on the cockroach as a vector. In 23 per cent of cockroaches caught in the huts of patients *Myobacterium leprae* was found. In skin wounds and scars caused by the bite of cockroaches *M. leprae* was frequently found. The numerous bacilli found in roaches which have ingested them suggests that multiplication in the roach has occurred. The bacilli remain unchanged and presumably alive in the dry droppings of the roach, for at least sixteen months. In 5 cases roaches ingested *M. leprae* from the dried feces of other roaches fed on positive material; "this may be found to continue indefinitely, so that the real source of infection of Hansen's disease may prove to be the droppings of cockroaches." Strongly acid-fast "Oval Bodies" were found in 70 per cent of all roaches examined, and only occasionally in routine examinations of blood and smears from man. Reenstierna, director of the Department of Hygiene and Bacteriology at the University of Upsala, Sweden, recognized them as greatly resembling, and probably indentical with, the "Maternal Fungus" he discovered in 1912 in a blood culture from a leper and later on found in several other patients. The leprosy bacillus may be passed to man either by the bite of the roach or by the dried droppings of the roach rubbed into the skin. Infection from man to man is unlikely.—*Transmission of Hansen's Disease (Leprosy), B. Moiser, Acta med. Scandinav., 1946, 126: 347.*—(*O. Pinner*)

Johne's Bacillus Antigen.—The author has demonstrated in previous publications (J. Immunol., 1945, *51*, 279 and *53*, 127) an antigen in the intestinal mucosa of sheep infected with *M. paratuberculosis*. The antigen is "masked" in fresh mucosa and will not react with sera from infected sheep in the complement fixation test. When the tissue is dried and thoroughly ground before extraction, the antigenic substance, which appears to be protein, becomes available in serologically active form. This substance is shown to be insoluble within the pH range of 3.0 to 5.0. Preliminary acidification of dried ground mucosa to this region and subsequent extraction of the sedimented material with saline at pH 9.0 and at 100°C. results in more active extracts than were previously obtainable. It is suggested that there may be two "masking" mechanisms; one is destroyed by mechanical grinding of the dried tissue, the other is removed by treatment with acid.—*A Specific Antigen Recovered from Tissue Infected with M. Paratuberculosis (Johne's Bacillus): III. Further Studies on the Nature of the Antigen and on Methods for Demasking It, B. Sigurdsson, J. Immunol., February, 1947, 55: 131.*—(*S. Raffel*)

Streptomycin in Veterinary Medicine.—The use of streptomycin in veterinary medicine has been based principally on the use in humans. No definite animal dosage is as yet known. Anatomical and physiological differences among mammals will undoubtedly result in various responses to this drug. Control of infectious diseases in domestic animals should be based primarily on prevention, which requires the application of hygienic principles first and immunological procedures second. It is unlikely that streptomycin will be available to the veterinary profession for some time. Streptomycin in veterinary practice is limited by the requirement of frequent dosage. This can be overcome in hospitalized dogs and cats, but for farm animals it is obviously not economically feasible. This may be overcome in part by the use of vehicles to delay absorption. Certain organisms acquire resistance to streptomycin. The question arises then, will resistant, virulent microörganisms be transmitted from treated animals to susceptible animals and produce disease that will not respond to streptomycin therapy? It is obvious that one would not use streptomycin to treat bovine tuberculosis, anthrax, glanders or rabies. Valuable animals afflicted with brucellosis may prove to be worthy patients.

Pyelonephritis in cattle may be amenable to this therapy. Actinomycosis and mastitis may also be added to this group.—*Streptomycin in Experimental Infections and Its Possible Use in Veterinary Therapeutics, A. G. Karlson & W. H. Feldman, J. Am. Vet. M. A., February, 1947, 110: 63.*—(*R. W. Clarke*)

Tuberculosis Campaign in Brazil.—On June 21, 1946, President Dutra of Brazil signed a decree providing for an intensive national campaign against tuberculosis under the direction and control of the National Department of Public Health. While the entire nation is to be covered, special attention will be centered on the areas with the highest tuberculosis incidence. In support of the decree the Minister of Education and Health stated that tuberculosis was the communicable disease with the highest death rate in Brazil, the number of yearly deaths being estimated at 80,000 and the number of patients being placed at 800,000. The situation is getting worse, and epidemic outbreaks are actually occurring, especially in the most thickly populated centres. Death rates vary from 300 to 500 per 100,000 inhabitants, the highest (above 400 per 100,000) in the cities of Vitoria, Salvador, Porto Alegre and Belem, with Rio and Nichtheroi coming next. The efforts so far made have been inadequate and incoördinated and the results spotty. Success depends on efficient organization, uniformity of action and constant expert supervision by the National Tuberculosis Service of the National Department of Public Health. More active support should also be obtained from members of national tuberculosis organizations now numbering nearly 3,000,000. In commenting on these developments, the Editor of *Clínica Tisiológica* adds that, with the exception of Sao Paulo, which from the beginning of the century has stabilized its tuberculosis death rate around 100 per 100,000 and Terezina, Curitiba and Cuiabá with rates which have risen lately from 50 to 200 per 100,000, the rates in the other 17 State capitals run from 250 to 500 per 100,000. Most of the large Brazilian cities are now going through the phase of massive tuberculization. The relatively low figures at Sao Paulo are most likely due to its predominantly European population, as is also the case with Buenos Aires and Rosario in Argentina and Montevideo in Uruguay. The problem is far different and much worse in the other South American cities. Should urban rates apply to the whole of Brazil, the annual number of tuberculosis deaths would be 118,350 for a 45 million population. The number of beds available for patients in the whole country does not exceed 12,410, most of which are provided by the Federal Government. Prompt provision of hospital beds and dispensary facilities, extension of mass surveys, intensive use of BCG in the newborn, creation of tuberculosis professorships in medical schools and intensive study of the epidemiology of the disease in Brazil are recommended.—*Campanha Nacional contra a Tuberculose, R. Fernandes, Clín. Tisiol., April–June, 1946, 1: 1, and 146.*—(*A. A. Moll*)

Tuberculosis in St. Lawrence Basin.—In three years, 31,265 persons, about 22 per cent of the population of the St. Lawrence basin, were fluorographed by a traveling mission from the St. George Sanatorium. Of this group, 702, or 2.2 per cent, were diagnosed tuberculous, 316, or 0.9 per cent, were considered suspicious and 1,556, or 5 per cent, had primary infections. Of the diagnosed cases, 48 per cent were minimal, 31 per cent were moderate and 21 per cent far advanced.—*Trois années de dépistage de la tuberculose dans le bas St. Laurent par les médecins du Sanatour St. Georges, J. A. Couillard, Laval méd., December, 1946, 11: 1033.*—(*E. Bogen*)

Tuberculosis in Moravia.—The mortality of tuberculosis in Moravia was lower (191 men and 179 women per 100,000 inhabitants) than in other parts of Czechoslovakia before World War II. During the war the morbidity and the mortality increased and this

increas is persisting at present. Compared with other European countries, only France, Hungary, Rumania and Bulgaria reported higher mortality of tuberculosis.—*Tuberculosis Mortality in Moravia (Umrtnost tuberkulosou v zemi Moravskoslezske), P. Pur, Prakticky Lekar, (Czech), September, 1946, 14: 390.*—*(O. Felsenfeld)*

Tuberculosis in Holland.—The incidence of tuberculosis has increased. The scarcity of food, especially fats, the necessity to live in crowded quarters due to voluntary and forced evacuation, the shortage of medical personnel in hospitals and sanatoria, the closer contact of people in overcrowded trains and other means of transportation, the long distribution lines in central kitchens and distribution offices, were all favorable to the spread of tuberculosis. Besides physical factors, psychological factors played a great rôle and diminished the resistance of the population to tuberculosis. The mortality from pulmonary tuberculosis increased 87.5 per cent from 1939 to 1943. During World War I there had been an increase of 44.8 per cent from 1914 to 1918. The total number of people who consulted the tuberculosis clinics increased from 60,000 in 1939 to 157,000 in 1943. Of these, 8,840 cases turned out to have active tuberculosis in 1939 and 18,571 in 1943. This represents an increase of 110 per cent. In Amsterdam the increase of new active cases was 154 per cent. Only 46 per cent of the patients who died of tuberculosis were ever seen in a clinic. During the war an increasingly large number of people started to make use of the clinics because of the rising fear of tuberculosis and the material gains incurred. Tuberculous patients were not sent to Germany and received extra rations of food. Great difficulties were encountered in the care of patients. Many sanatoria had to be evacuated, there was a great shortage of linen, soap, disinfectants. People often preferred to keep their children at home because of the many uncertainties and the difficulties in traveling. The nurses had to cover large districts and had little means of transportation. In order to limit the spread of tuberculosis among nursing personnel, extra courses were given to instruct them in the prevention of tuberculosis. Other preventative work was quite limited and in only a few cities was it possible to fluoroscope the school-children. BCG vaccine was not used.—*From the Report of the Chief Public Health Officer for the year 1943, Dr. C. Banning, Verslagen en mededeelingen betreffende volksgezondheid, September, 1946.*—*(K. Van Leeuwen)*

Tuberculosis Administration in America.—Two leading Australian tuberculosis specialists visited more than 40 American tuberculosis sanatoria and clinics and report on their four months observations, in 66 pages. Mass radiography is commended but the need for protection of operating personnel, and for provision for the follow-up and care of new cases discovered is stressed. One sanatorium bed for each 5 cases discovered in the community, or about 1 bed per 1,000 population is advised rather than the old standard based on the number of deaths per year. About 400 beds was considered the optimum size of a sanatorium. Sanatorium construction is discussed and the advantage of placing the kitchen on the top floor noted. Rooms with no more than 6 beds are advised instead of large wards. A chest clinic is needed for every 300,000 population, with adequate visiting nurses and other staff. It is recommended that the Governments concerned pay an amount equal to the basic wage to breadwinners suffering from tuberculosis and unfit for work. The qualifications and salaries of staff members and other help, and the use of patient and ex-patient help on the staff are reviewed. The indications for artificial pneumothorax, thoracoplasty, and especially for pulmonary resection are discussed and the treatment of empyema outlined.—*Reports on Tour of Canada and United States of America, H. M. James & C. J. Officer Brown, Government Printer, Melbourne, 1946.*—*(E. Bogen)*

Tuberculosis in Mentally Ill.—A total of 2,000 patients were examined at the mental hospital in Cery for the presence of pulmonary tuberculosis. Chronic fibro-calcified forms of the disease were found in 28 per cent, open tuberculosis in 1 to 2 per cent. Schizophrenics and patients with senile dementia were most frequently affected. Two hundred and nine autopsies carried out on this group revealed advanced tuberculosis in 57 per cent of the cases.—*Une enquête phthisiologique a l'Asile de Cery, R. Burnand & G. Schneider, Bull. d. Schweiz. Akad. d. Med. Wissensch., 1946, 2: 77.*—(*B. Gerstl*)

Bronchiectasis and Primary Tuberculosis.—Pulmonary tuberculosis is frequently a cause of bronchiectasis observed in childhood. In a careful follow-up study of 37 children with primary tuberculosis Willis *et al.* found manifest bronchial dilatation in 24 of these children. It was demonstrated that in every instance the segment of the lobe with bronchiectasis was the previous site of the tuberculous process. The conclusion reached was that pulmonary tuberculosis in children is frequently complicated by tuberculosis of a bronchus and that these bronchial lesions are often associated with obstructive pneumonitis. Further, a large number of these obstructive lesions associated with tuberculosis of a bronchus revealed bronchiectasis in the segment or lobe involved in the obstruction. The dilation of the bronchus usually extended from the root of the lung to the periphery.—*Bronchiectasis following Primary Tuberculosis, Editorial, Am. J. Roentgenol., January, 1947, 57: 116.*—(*J. E. Farber*)

Primary Tuberculosis in Adults.—X-ray signs of old pulmonary processes were found in all cases (27.5 per cent) found negative in a tuberculin survey made in 1939 among 771 inmates of two Rio homes for old men. Saenz' experiments suggest that disappearance of allergy in old people is due to lack of stimulation by superinfections. Anatomical and clinical evidence also supports this conception. Surveys made in young physicians, medical students and nurses exposed to direct hospital infection show that the disease attacks allergic as well as anergic individuals. At the Almeida Magalhães and Miguel Pereira Hospitals at Rio, old staff members with more than six years of professional contact with the disease, usually showed a low allergy. Those recently employed, while also showing a low allergy when tuberculin-tested, became more highly allergic under contact with tuberculous patients. It was in the latter group that cases developed. This led to the transfer to other work of new staff members who became tuberculin-positive with strong phlyctenular reactions if the latest roentgenogram, as compared to the one taken on entrance, showed activation. A clinical and X-ray study of 314 necropsies in the two hospitals justified the division of all apparently primary cases into three groups: *1.*) genuine primary infection, Borrel type, *2.*) primary infection type, and *3.*) secondary-primary complex. In the first type, described by Borrel in Senegal soldiers during World War I, caseated parenchymatous lesions coincided with enlarged, swollen nodes, also caseated. These cases totaled 72 (22.9 per cent of the series). In the second group, the primary process was complicated by the coexistence of fibrotic or fibro-calcific lesions, bearing witness to previous infections, entirely or partially overcome. There were 138 cases (23.9 per cent) of this type. The third group included only one case in a 30-year-old woman and was characterized by a completely calcified hard process in the lung with large caseous mesenteric nodes, typical of a virgin soil. These observations lead to the conclusion that the one essential in the prevention of primary tuberculosis is the use of BCG in all healthy anergic persons of all ages. Vaccinated persons who may contract tuberculosis will thus develop a reinfection type with a more favorable response to collapse therapy.—*Clínica da tuberculose primaria do adulto, R. Fernandes, Clín. Tisiol., April-June, 1946, 1: 5.*—(*A. A. Moll*)

Primary Tuberculosis in Adults.—Two elements are generally accepted in the diagnosis of primary infection: tuberculin conversion and lymph node tuberculosis. Enlargement and caseation of the hilar nodes is the usual response of the infantile organism to the attack of the Koch bacillus. Adults who have this form of tuberculosis are often of the infantile type and some show retarded genital development. Endocrine imbalance has a definite influence on the development of the histological structure of the lung. But glandular tuberculosis has also been observed in adults who have had definite histories of previous tuberculous infection. Here, complete healing of the previous disease with disappearance of the allergy has taken place. Consequently, a person who does not react to tuberculin may either be normergic or may have overcome completely cutaneous sensitivity to tuberculin. In Montevideo, systematic autopsies of all 20-year-old persons killed in accidents showed that calcifications were present in 100 per cent, although only 80 per cent of that group are tuberculin reactors. The calcifications were always small and generally found in the lower pulmonary fields. In some cases, discrete abortive lesions were present in the nodes. Only when the infection is repeated by new exposures to contact, is tuberculin allergy maintained. Otherwise, the foci become sterile. The statistics prove that after fifty years the index of allergization decreases in the population, although small calcified foci are always present. Tuberculin-negative adults must be considered as having completely recovered from the disease and many will respond to a new tuberculous infection with a primary lesion as seen in children. This is especially true for certain races (Negroes, Indians, Mulattos etc.). If transplanted from their normal living conditions into the big cities, the change in nutrition and activity, unaccustomed industrial work, the difficulties of maintaining adequate living conditions, alcoholism etc., will cause a profound disturbance of the defense mechanism and give rise to the appearance of acute exudative and caseous forms of tuberculosis with frequent glandular participation. Persons of all races, deprived of their usual living conditions as in the last years in Europe, may respond to the infection with a childhood type of disease, whether their reaction to tuberculin is positive or negative. In the white race, these patients were always found to have underdeveloped secondary sexual characteristics. There is not only a hereditary transmission of the disposition to acquire tuberculosis but also a special disposition to variations of the disease with typical topographic and pathological features and similar prognosis. The latter is responsible for the variations of infectivity in certain families or social groups. It explains why one member of a family will survive a certain type of the disease whereas another member dies from it. The conclusion is that primary tuberculosis of the adult is due to constitutional particularities and not to biological ones. The clinical examination of these patients should always be combined with biometric, genealogic, genetic and social studies.—*La tuberculosis primaria y de reinfeccion del adulto; su significado clinico, epidemiologico y social, F. D. Gomez, Hoja tisiol., December, 1946, 6: 420.—(W. Swienty)*

Phlebitis in Tuberculosis.—Phlebitis often develops late in the course of pulmonary tuberculosis, but is rare before the tuberculosis has progressed. Two instances are described in which acute phlebitis remained unilateral and did not adversely influence early pulmonary tuberculosis.—*Phlébite précoce chez deux tuberculeuses, R. Desmeules, Laval méd., February, 1947, 12: 113.—(E. Bogen)*

Mediastinal Displacement by Caseous Lung.—Mediastinal shift from ordinary causes is towards the involved side. Pulsion (or contralateral) displacement may be caused by unilateral cystic, neoplastic or emphysematous pulmonary processes. A child, age 8 months, is reported. He was studied for a week before death and autopsy was performed. The

physical and X-ray signs were those of a massive left pleural effusion with mediastinal shift to the opposite side. Aspiration produced thick tuberculous pus. Autopsy showed obliteration of the left pleural space by adhesions; and enlarged left lung, weighing nine times as much as normal; and an almost complete replacement of the lung substance by caseation.—*Displacement of the Mediastinum Due to Pulsion by a Caseous Tuberculous Lung without Pleural Effusion, J. F. Miller & B. H. Kean, J. Pediat., February, 1946, 28: 200.*—(*W. H. Oatway, Jr.*)

Undetected Tuberculosis.—Two hundred consecutive autopsies were done in a general hospital which does not knowingly admit tuberculous patients; 41 cases of tuberculosis of all types were found. Two age groups were distinguished: below and above 20. In the first group were 24 autopsies, 3 of which revealed generalized tuberculosis. Of 176 autopsies done on persons above 20, 38 cases of tuberculosis were found. Of all 41 cases, 31 died of causes other than tuberculosis, and the patient as well as the physician were completely unaware of the disease. In 18 of these 31 autopsies, extensive caseo-caverno-pneumonic or miliary disease was found. The other 13 cases showed residual tuberculosis in 5, productive glandular disease in 5, fibrotic in 2 and pleural tuberculosis in one. Of the remaining 10 cases, 8 patients ignored the disease but their physicians had established the diagnosis. In view of the high incidence of undetected tuberculosis, the conclusion is that no patient should be admitted to a general hospital without X-ray examination of the chest.—*Anatomia patologica de la tuberculosis inaparente, A. de Paula, Prensa méd. argent., November 15, 1946, 33: 2300.*—(*W. Swienty*)

Treatment of Tuberculosis.—Disposition for tuberculosis exists only in individuals with alkalotic constitution. The alkalotic constitution is a good medium for the tubercle bacillus. The determination of the pH in the blood helps in differential diagnosis: values toward the acid side speak against tuberculosis. Shifting of the pH toward the acid side in tuberculous patients is an objective sign of healing. Shifting of the acid-base balance toward the acid side and maintenance of acidity is possible. It is done by inhalation of CO_2, once or twice daily for five minutes, and by oral administration of ammonium chloride. At the same time the blood-calcium should be increased, which can be done with the help of large doses of human serum. The change of the medium has a bacteriostatic effect and the calcium salts, which are deposited near the bacteria, have a bactericidal effect. Patients with alkalotic constitution are unsuitable for employment in a tuberculosis institution because of danger of infection. It is advised to do blood pH and calcium determinations in employees of tuberculosis institutions at regular intervals.—*Neue Wege der Tuberkulosebehandlung, V. Sajgó, Wien. klin. Wchnschr., September 13, 1946, 58: 529.*—(*G. C. Leiner*)

Diasone in Pulmonary Tuberculosis.—Diasone in the treatment of 38 patients with pulmonary tuberculosis in the Huipulco Sanatorium in Mexico proved disappointing. Out of 29 cases with cavitation, the result may be called good only in 3 early cases with few and small cavities. In only 2 of these did sputum become negative. In 6 cases cavitation progressed. The average daily dose was 0.9 g. for persons weighing 110 lbs. or more and 0.6 g. for those under that weight. Dosage had apparently little influence on the result, as cavities healed with blood concentrations from 0.5 to 4 mg. In view of the frank toxicity of the drug, use of a supplementary antitoxic medication might improve the outcome. Tuberculous enteritis was favorably affected in 3 cases, and an ulcer of the soft palate healed under treatment. A trial of the drug in extrapulmonary tuberculosis might be worth while.—*Quimioterapia de la tuberculosis (resultado de ensayos con diasone), D. G. Alarcón & E. García Salazar, Clín. Tisiol., July-September, 1946, 1: 159-184.*—(*A. A. Moll*)

Streptomycin and Tubercle Bacilli.—On the basis of extensive *in vitro* and *in vivo* experiments, it is concluded that streptomycin is capable of retarding the growth of human tubercle bacilli. The high concentration of streptomycin required in a good nutrient medium indicates that adequate concentration *in vivo* can only be attained for brief periods. Lung, liver, spleen and kidneys of guinea pigs that had received large doses of streptomycin one hour or one day before death did not retard growth of tubercle bacilli in broth. This is taken as evidence that streptomycin does not enter these organs in appreciable amounts for any significant time. Streptomycin is, therefore, considered as an encouraging milestone in the chemotherapy of tuberculosis, but its application is of limited value.—*The Tubercle Bacillus and Fundamental Chemotherapeutic and Antibiotic Action, H. J. Corper & M. L. Cohen, Yale J. Biol. & Med., 1946, 19: 1.*—(*B. Gerstl*)

Experimental Streptomycin Poisoning.—Administration of various doses of streptomycin to 42 monkeys, 11 dogs, 350 rats, 100 mice, 10 chickens and 154 guinea pigs produced a variety of lesions, especially temporary fatty changes in the liver and less often in the kidneys. Disturbances in equilibrium in dogs was noted but the responsible lesion was not found.—*Pathologic Changes Resulting from the Administration of Streptomycin, C. W. Mushett & H. S. Martland, Arch. Path., December, 1946, 42: 619.*—(*E. Bogen*)

Streptomycin in Oil and Beeswax.—Since the indications for slow absorption with prolonged therapeutically effective serum levels are the same as in penicillin therapy, the purpose of this investigation was to study the absorption and excretion of streptomycin suspended in peanut oil and beeswax and in solvecillin (a commercial lanolin-like substance) administered by intramuscular injection. Local reactions were quite mild and similar to those produced by similar amounts of streptomycin dissolved in sterile saline solution. It was found that streptomycin suspended in peanut oil and beeswax is not absorbed from the muscles as readily as penicillin. This slow absorption probably results in greater fixation or inactivation of streptomycin in the tissues, accounting for the low serum levels and reduced urinary excretions. Maintenance of minimum effective serum levels over a period of six hours requires the injection of more than 500,000 units per dose. Absorption after intramuscular injections of the compound emulsified in solvecillin is more pronounced and similar to that following injections of the compound dissolved in saline solution, but serum levels following intramuscular injections of 250,000 units in solvecillin were not as high as those following intramuscular injections of 500,000 units suspended in peanut oil and beeswax.—*Administration of Streptomycin in Peanut Oil and Beeswax and in Solvecillin, L. A. Kolmer, A. Bondi, H. F. Warner & C. Dietz, Science, October 4, 1946, 104: 315.*—(*E. A. Rouff*)

Streptomycin in Childhood Tuberculosis.—Four children 7 months to 3 years of age with early pulmonary tuberculosis of the childhood type were treated with streptomycin. Each child received 20,000,000 to 30,000,000 units of streptomycin. Although the children showed extending disease prior to the institution of therapy none of them showed progression during streptomycin therapy. Defervescence, improvement in the general condition and regression of the pulmonary lesion were observed in all 4 cases.—*Streptomycin in Pulmonary Tuberculosis in Childhood: Results in Four Children, H. N. Sanford & D. E. O'Brien, J.A.M.A., March 8, 1947, 133: 691.*—(*H. Abeles*)

Deaths during Artificial Pneumothorax.—Six cases are described. In 5 of them the pulmonary parenchyma was penetrated with the needle and a valvular pneumothorax resulted. The sixth patient died of heart embolism.—*Deadly Complications during Treatment with Pneumothorax (Smrtici komlikace*

pri lecbe pneumothoraxem), O. Ruzicka, Časop. lék. česk., (Czech), December, 1946, 85: 1741.—(O. Felsenfeld)

Horner's Syndrome following Pneumonolysis.—During the surgical severance of pleural adhesions an injury of the cervical sympathetic nerve was caused. Vasodilatation, lower tonus of the facial muscles and periodic sharp pain in the shoulder (Horner's complex) resulted.—*A Complication in the Autonomic Cervical Nerves Resulting from Thoracocaustic (Komplikace na autonomnim nervstvu krcnim pri thorakokaustice), F. Novak, Lekarske Listy, (Czech), October, 1946, 1: 457.—(O. Felsenfeld)*

Extrapleural Oleothorax.—In a 27-year-old man an extrapleural pneumothorax was instituted in November, 1939. The air was replaced with oil in April, 1940. In January, 1942, the oil was removed and in August, 1942, the extrapleural cavity was no longer visible. In a 26-year-old woman an extrapleural pneumothorax was instituted in January, 1940. The air was replaced with oil in April, 1940. The oil was removed in August, 1942, and in November, 1942 the extrapleural cavity was no longer visible. In the majority of the patients with oleothorax, the oil remains symptomless in the cavity and is, therefore, not removed. It is advisable to remove the oil after some time because complications may arise even after many years.—*Der Endausgang des extrapleuralen Oleothorax, K. Domokos, Wien. klin. Wchnschr., December 13, 1946, 58: 753.—(G. C. Leiner)*

Pneumoperitoneum.—In 2 cases in which artificial pneumoperitoneum had been abandoned, extensive adhesions were found on attempted reinduction. In 3 other cases, no adhesions were found. It is suggested that, instead of complete abandonment, a shallow pneumoperitoneum be maintained if there is any possibility of future need of reinduction.—*Adhesion Formation after Pneumoperitoneum, F. L. Corrigan, Tubercle, February, 1947, 28: 25.—(A. G. Cohen)*

Avian Tubercle Bacilli.—Avian tubercle bacilli do not comprise a homogeneous serological group; rather, they belong to distinctly different serological types. To identify these types, complement fixation and agglutination reactions are both used. For the former, either alcoholic extracts, according to Schaefer's method, or bacillary suspensions heated to 80°C. for one hour are employed. The same suspensions serve for agglutination reactions, as all batches are smooth on Lowenstein's medium, producing a sufficiently stable suspension. Antisera are made by injecting rabbits intravenously two times per week for three or four weeks with 4 to 8 mg. of killed bacilli; the animals are bled six days after the last injection. At first these sera produce only a weak specificity and give complement fixation or agglutination reactions with all avian and even bovine bacilli. Treatment of the sera by absorption of antibodies for the herterologous strains produces a specific serum for homologous strains. Of 23 strains so tested, 12 belonged to type I and 10 to type II (Schaefer). A strain isolated from a tuberculous chicken did not resemble any of the known types: it produced an antiserum which, after absorption by a heterologous strain, showed specificity for the homologous strain. This serum, in non-absorbed state, reacts with all types of avian strains and with the guinea pig type III. But after absorption by heterologous strains, it has a specificity only for the homologous strain. This is apparently a new serological type of avian bacilli, distinct not only from types I and II but also from two other types described by Cabasso, Schaefer and Harpoth. Antiavian rabbit sera agglutinate greater dilutions than those which fix complement in the presence of bacillary suspensions; apart from this quantitative difference, results by the two methods are essentially comparable. An antigen common to all types of avian bacilli exists which is not present in tubercle bacilli of mammals. This common antigen is not strictly specific for avian bacilli, as it occurs also in saprophytic bacilli of guinea pigs (guinea pig type

III). This type absorbs all antibodies in antiavian sera, except the specific antibodies of the type; conversely, the antiserum prepared from this type reacts with all avian types, even after absorption by bovine or human bacilli. The dominant and truly characteristic antigen of avian bacilli is therefore the type specific antigen and it is necessary to prepare specific sera for each type to identify the avian strains by serological methods.—*Contribution à la classification sérologique des bacilles de la tuberculose aviaire, F. Rotach, Ann. Inst. Pasteur, January, 1947, 73: 71.*—(*P. Q. Edwards*)

Demonstration of Tubercle Bacilli.—Maximal sensitivity in detecting tubercle bacilli in sputum has been found by injecting 2 cc. of non-modified sputum emulsified in physiological saline into a guinea pig treated preventatively with sulfamides. First, to determine the most sensitive preparation, sputum from 24 patients was injected into 72 guinea pigs. The first group of 24 pigs received 2 cc. of sputum emulsified with physiological saline (non-modified sputum); for group 2 the sputum was treated with 15 per cent sodium hydrate for twenty minutes at 37°C., then neutralized before injection; group 3 received a similar preparation, sulfuric acid being substituted for the alkali. In all cases the volume of injection was 2 cc. Group 1 showed unquestionably greater sensitivity in detecting bacilli; in no case was there any disparity in the results: no pig in group 2 or 3 developed tuberculosis without the corresponding pig in group 1 showing signs of the infection. Since the guinea pig is highly susceptible to the ordinary bacterial flora of the mouth, a means of decontaminating the sputum yet keeping it unmodified needed to be developed. Preventive sulfamidotherapy proved to be the answer to this problem: after injection of the non-modified sputum under the skin of the thigh, the guinea pig was fed 0.1 g. "Septoplix" daily for three days. Very satisfactory reduction in the mortality rate of the animals was thus obtained.—*Comparison des méthodes d'inoculation aux cobayes pour la recherche du bacille de Koch dans les crachats: Supériorité de l'inoculation du produit non modifié chez le cobaye traité par les sulfamides, F. Tison, Ann. Inst. Pasteur, February, 1947, 73: 186.*—(*P. Q. Edwards*)

Tubercle Bacilli in Gastric Contents.—The gastric contents of 42 children were examined by direct smears, culture and animal inoculation; 34 were tuberculin reactors. Roentgenologically, mainly pulmonary and hilar tuberculosis was present, predominantly with discrete, and very rarely with disseminated, lesions. In 2 cases tubercle bacilli were found on direct smears, in 5 by culture and in 11 on inoculation. Positive results occurred only in tuberculin-positive children. In applying this method many possible errors, especially as to the anatomical source of the bacilli, must be excluded.—*The Research of the Bacillus in the Contents of the Stomach during Children's Tuberculosis, S. Papaemmanuel, Sismogleion, Archives of Tuberculosis (Greece), 1946, 2: 125.*—(*O. Pinner*)

Bacteriological Diagnosis.—Failure to detect tubercle bacilli by direct microscopic methods, when clinical evidence or guinea pig inoculations demonstrate them, prompted a study of both clinical and bacteriological factors pertinent to this problem. Reasons given *a priori* for failure to detect bacilli when present in extremely small numbers are: (*1*) the acid-fast stains, (*2*) methods of homogenizing the sputum for examination and (*3*) Lowenstein's media, both old and new types. Bacillary colonies appeared slowly and in smaller numbers when inoculation was made on month-old cultures than when fresh material was used. When attempting to grow bacilli from material containing few organisms, the following procedures are recommended: slow homogenization with preliminary heating, centrifugation at high speed (5,000 r.p.m.) for one hour, inoculation of two guinea pigs with part of the sediment and inoculation on culture medium of the whole sediment. If these procedures are carefully followed, the

chances for recovering bacilli from bacilli-poor materials are greatly improved.—*De certaines difficultés dans le diagnostic bactériologique des tuberculoses paucibacillaires, P.-J. Coletsos, Ann. Inst. Pasteur, February, 1947, 73: 188.*—(*P. Q. Edwards*)

Lipids, Albumin and Bacterial Growth.—Certain water-dispersible lipids enhance the growth of other bacteria, in particular, a certain micrococcus (strain C) recently isolated. The addition of crystalline serum albumin to this medium permits initiation of growth of minute inocula. The latter substance however did not increase appreciably the final density of the culture. A buffered basic medium containing hydrolysate of casein, glucose and yeast extract was used to observe the effect of different lipids and albumin. The basic medium alone gives a slow and scanty growth. In some of the tests a simple mineral solution was used, consisting of buffer salts and ammonium sulphate. Ferric chloride, glucose, enzymatic hydrolysate of casein, sodium stearate and oleate and serum albumin were added alone or in various combinations. The tubes were inoculated with micrococcus C or avian tubercle bacilli. To determine the effect of lipids and other substances on bacterial growth on solid (agar) medium, 1.5 per cent agar was added to the semisynthetic casein hydrolysate medium. Sodium oleate, ferric chloride and crystalline bovine albumin were added either separately or in combination. The long chain fatty acids have both inhibitory and stimulatory effects on the growth of tubercle bacilli and of micrococcus C. The toxicity of the fatty acids was reduced or abolished by (*a*) esterification, even when the resulting product was a water-soluble ester, and (*b*) addition of crystalline serum albumin to the culture medium; other proteins tested were inactive in this respect. Growth stimulation was obtained when certain long chain fatty acids were added in the form of their water-soluble esters, or in admixture with adequate amounts of serum albumin. Abundant growth of the micrococcus resulted from the addition of oleic, linoleic, linolenic or arachidonic acid to a mineral medium containing glucose as sole source of carbon. Enhancement of growth of tubercle bacilli was obtained by adding to the medium a variety of fatty acids (saturated or unsaturated) even in the absence of glucose or of any other readily available carbon compound. These results suggest that long chain fatty acids can affect the growth of different microbial species through different metabolic channels and that, in order to study the mechanism of these metabolic and growth reactions, it is essential to use the fatty acids under conditions where they cannot manifest their toxic properties.—*The Effect of Lipids and Serum Albumin on Bacterial Growth, R. J. Dubos, J. Exper. Med., January, 1947, 85: 9.*—(*J. S. Woolley*)

Vaccines in Experimental Tuberculosis.—Vaccines made from cultures of a strain of BCG and of a strain of virulent tubercle bacilli were killed by ultraviolet irradiation with the recently developed Oppenheimer-Levinsohn apparatus and compared with a live BCG vaccine and heat-killed vaccines of each of these strains. Two groups of guinea pigs received intraperitoneally three equal doses of the irradiated vaccines and of the live BCG vaccine, respectively, at weekly intervals; the guinea pigs in the third group received only a single dose of live BCG. Three weeks after the last vaccination all these animals, as well as two control groups of nonvaccinated animals received an intraperitoneal injection of a 15-day-old culture of the virulent bacilli. All animals were observed up to time of death and autopsied. The effectiveness of the different vaccines was evaluated on the basis of their ability to prolong the survival time over that of the control animals. Three doses of live BCG gave slight if any protection. The irradiated vaccine from the virulent tubercle bacilli, administered in three doses, was equal in effectiveness to a single dose of live BCG. Heat-killed bacilli, virulent or BCG, were ineffective, as was the ultra-violet-killed BCG.—A *Comparative Study of Live and Killed Vaccines in Ex-*

perimental Tuberculosis: A Preliminary Note, B. J. Olson, K. Habel & W. R. Piggott, Pub. Health Rep., February, 1947, 62: 293.—(O. Pinner)

BCG in Sao Paulo.—In this collection of papers the developments are reviewed since BCG was introduced in Sao Paulo in 1926 to 1939, both in that city and elsewhere. Nearly 7,000 persons, including children and adults, had been vaccinated by 1937 at Sao Paulo and about 37,000 children and adolescents in the whole of Brazil. Approval is given to de Assis' statement that, while tuberculosis death rates in infants in a tuberculous environment vary from 8 to 30 per cent, they do not exceed 2.2 per cent in those vaccinated with BCG. BCG services are now in operation in most of the larger Brazilian cities, and especially at Rio, Sao Paulo, Sao Salvador, Belem, Recife, Belo Horizonte, Porto Alegre and Nichtheroi. At Rio over 52,000 children had been vaccinated by 1938, and the campaign has been intensified since that time. It is recommended that a similar effort be undertaken at Sao Paulo. Visiting nurses, of whom there are now an insufficient number, should help in this program. The subcutaneous route is now used almost exclusively. There is no question as to the innocuousness of the method. The Brazilian League against Tuberculosis has charge of this work under a contract with the National Department of Public Health, and manufactures the vaccine in its own laboratories.—*Trabalhos do Dr. Clemente Ferreira sobre a Vacina BCG em Sao Paulo, Publicações da Liga Paulista contra a Tuberculose, 1942, pp. 61.—(A. A. Moll)*

Hilum Tuberculosis.—In several patients, 30 to 60 years of age, roentgenograms revealed findings similar to those seen in epituberculosis of children or young adults. The disease usually starts acutely with fever, chill, headache, cough and chest pain, sometimes with hemoptysis. The physical findings are scarce and not characteristic. The temperature frequently rises to more than 39°C.; it decreases after a few days and subfebrile temperatures may persist for some time. The erythrocyte sedimentation rate is usually high. There is usually a slight leucocytosis, in some cases with a relative lymphocytosis. Tubercle bacilli were never found in the sputum. The chest roentgenogram shows in all cases a shadow shaped like a cone or a pyramid, the apex being at the hilum and the basis at the periphery near the surface of the lung. Lymph node shadows of soft or calcific density are seen at the hilum or in the mediastinum. Sometimes there is a pleural effusion on the side of the pulmonary density. The diaphragm may be elevated and there may be an inspiratory shift of the mediastinum to the same side. It is believed that these findings are due to atelectasis in a circumscribed lung area caused by bronchial stenosis. The fever, the elevated sedimentation rate and the leucocytosis speak in favor of inflammatory processes being present at the same time. There is usually a high sensitivity to tuberculin. The frequent occurrence of such processes in the higher age groups is probably due to the war and post-war conditions, that is, poor nutrition, unusual aggravations and increased exposure to infection.—*Über ein gehäuftes Auftreten der von der Hilusgegend ausgehenden sog. Infilitrierungen im vorgerückten Lebensalter, E. Zdansky & F. Wachtler, Wien. klin. Wchnschr., September 20, 1946, 58: 541.—(G. C. Leiner)*

Treatment of Tuberculous Tracheobronchitis.—Local treatment of tuberculous tracheal and bronchial lesions should be added to the general treatment of the patient and the treatment of the pulmonary disease. Bronchoscopic aspiration of secretions, cauterization of ulcers and granulations with diathermy or silver nitrate, and the application of adrenalin to the swollen mucous membranes are useful. In addition, the intratracheal instillation of penicillin several times a week, by lessening secondary infection and thinning the bronchial secretions, has been given to 14 of the 21 cases reported. Bronchoscopic observation has shown improvement in each of

those so treated with penicillin, results clearly superior to those given only silver nitrate, 2 of whom remained unimproved. Four cases are described in detail.—*Contribution à l'étude du traitement local de la tuberculose trachéo-bronchique, J. Halle, Laval méd., February, 1947, 12: 147.*—(*E. Bogen*)

Laryngeal Tuberculosis.—The pathology of laryngeal tuberculosis is determined by the anatomy of the lymphatic apparatus of the larynx. The infection is propagated through canalicular, blood and lymphatic channels. Two types of edema are observed: (*1*) collateral or perifocal; (*2*) chronic, caused by tuberculous lymphangitis. Tuberculous tumors and lupus of the larynx are discussed. Changes in Poirier's gland, paresthesias and hoarseness are important for early diagnosis.—*Tuberculous Inflammations of the Larynx* (*Tuberkulosni zanety hrtanu*), *Z. Jaros, Lekarske Listy*, (*Czech*), *December, 1946, 1: 580.*—(*O. Felsenfeld*)

Calciferol in Tuberculosis.—In 20 cases of lupus vulgaris, the average duration of the disease was ten years. Practically every known form of treatment had been used previously. Large amounts of calciferol were administered either parenterally (600,000 units twice a week) or orally (150,000 units daily). Improvement began after three weeks in most cases. The rate of improvement was not a steady one but the results achieved were far better than with any other form of treatment. There were no remarkable changes in the blood calcium level. Later calciferol treatment was used in conjunction with local therapy and even better results were achieved. Two cases each of tuberculous cervical adenitis and of tuberculous tenosynovitis were then treated with excellent results. Toxemic symptoms were noted in 50 per cent of cases, consisting of nausea, epigastric discomfort, depression and weakness. These were usually mild. There was an occasional flare-up of a quiescent tuberculous lesion. There was no evidence of renal damage.—*The Use of Calciferol in Tuberculous Conditions, D. B. Macrae, Lancet, January 25, 1947, 1: 135.*—(*A. G. Cohen*)

Phlyctenular Conjunctivitis.—Tuberculosis was present in 27 out of 28 children (21 females and 7 males between 11 months and 15 years of age) with phlyctenular conjunctivitis. One child had *tabes mesenterica*, 3 tuberculous cervical lymphadenitis and 23 cases showed roentgenological evidence of pulmonary tuberculosis. The latter group consisted of 17 active and progressive lesions, including 3 of the fibrocaseous type, and only 6 apparently healed or quiescent lesions. In 10 cases the lesions of the eye and of the lung were homolateral; of the 6 cases with bilateral lung lesions, 2 had only one eye affected; 2 of the 3 cases with extrapulmonary tuberculosis had bilateral lesions. There were 10 cases with known tuberculous contact; 7 children had had contact with patients with chronic cough of unknown etiology. In one family, 4 children had phlyctenulosis; when the eldest of the children was hospitalized after a severe hemoptysis, the eye lesions of the other 3 cleared up within ten days.—*Phlyctenular Conjunctivitis: A Clinical and Radiological Study of 28 Cases, I. Mirvish & D. Hilson, Clin. Proc.* (*Cape Town*), *November, 1946, 5: 388.*—(*O. Pinner*)

Tuberculosis Conjunctivitis.—Tuberculosis of the conjunctiva is uncommon; primary lesions are even more rare. Except for a Scandinavian series of 40 cases, reported in 1936, only isolated case-reports have been published. The diagnosis of a primary lesion is based upon the absence of a demonstrable lesion elsewhere, the unilateral character of the process and the involvement of regional nodes. The methods of inoculation and the types of lesions are described. One case of primary tuberculosis of the conjunctiva in a 10-year-old child is described. Diagnosis was made by biopsy.—*Primary Tuberculosis of the Conjunctiva, A. A. Goldfarb & I. Seltzer, Am. J. Dis. Child., August, 1946, 72: 211.*—(*W. H. Oatway, Jr.*)

Tuberculous Splenomegaly.—Only about 100 cases have been reported in the literature, and only 5 were less than 10 years of age. A Negro boy, 11 years of age, is reported whose complaint was stiffness in the back. X-ray abnormalities at one apex were transient. A tuberculin patch-test was negative, as were two Mantoux tests (1:100,000 and 1:1,000). Leucopenia and thrombocytopenia were present. Banti's disease was diagnosed and the spleen was removed. It weighed 700 g., was adherent to the posterior wall (the cause of pain) and consisted mainly of epithelioid proliferation. The blood changes reverted to normal after operation.—*Tuberculous Splenomegaly in Children, C. R. Dietz, Arch. Pediat., April, 1946, 63: 168.*—*(W. H. Oatway, Jr.)*

Vessels in Tuberculous Meningitis.—Two cases of acute tuberculous meningo-encephalitis with gross hemorrhages and extensive vascular lesions of an unusual nature are reported, one was a 36-year-old Negress, who had signs of cerebral irritation and whose cerebro-spinal fluid suggested tuberculosis, although tubercle bacilli were not found. Death occurred in coma on the fifteenth hospital day. A postmortem examination showed that the entire base of the brain was covered by a dense, yellow, adherent exudate. On the surface were many minute, tubercle-like nodules. On sectioning, the brain showed areas of petechial hemorrhage. The meningeal vessels were extensively involved. Acid-fast bacilli were found in the adventitia or media of the affected areas. Of great interest was the hyaline-fibrinoid degeneration of Askanazy affecting the media and intima of the smaller arteries and arterioles. The second case was a female cretin dwarf, 48 years old, whose physical examination and spinal fluid were suggestive of meningeal irritation. Death occurred twenty hours after admission. Examination of the brain showed but little exudate over the base. The frontal lobes were extremely soft and bluish. These lobes were almost completely destroyed and had the appearance of a soft hemorrhagic paste. At the periphery the brain tissue was studded with innumerable hemorrhages. Microscopically the intracerebral vessels of the frontal lobe showed extensive hyalin fibroid degeneration. No giant cells or tubercles were seen anywhere and only rarely did small clumps of epithelioid cells occur. Acid-fast bacilli were extremely rare. In these two cases it was evident that thrombosis played the chief rôle in the production of hemorrhage. The vascular fibrinoid degeneration of Askanazy was present in the subintimal zone and media of the involved vessels, more frequently in intracerebral than in meningeal vessels.—*Gross Cerebral Hemorrhage and Vascular Lesions in Acute Tuberculous Meningitis and Meningo-Encephalitis, J. W. Goldzieher & J. R. Lisa, Am. J. Path., January, 1947, 23: 133.*—*(J. S. Woolley)*

Agenesis of Lung.—The congenital absence of a right lung was diagnosed in an otherwise normal and asymptomatic infant 8 months of age. The criteria were similar to those generally accepted. Only 4 of the 41 cases previously noted in the literature were diagnosed during life.—*Agenesis of the Lung, A. Widerman & C. H. Peters, J. Pediat., February, 1946, 28: 204.*—*(W. H. Oatway, Jr.)*

Pneumothorax in Newborn.—The condition is rare, but probably unrecognized at times. It requires an X-ray examination for diagnosis, since the signs and symptoms are not always prominent. Trauma at birth is a probable major cause. It has been suggested that the term be limited to those cases which are recognized within four to five days after birth. One case with recovery is described. Conservative treatment is recommended, with aspiration only for the more severe form.—*Spontaneous Pneumothorax in the Newborn, E. P. Scott & C. C. Rotondo, Am. J. Dis. Child., August, 1946, 72: 207.*—*(W. H. Oatway, Jr.)*

Spontaneous Pneumothorax.—This condition is seen predominantly in healthy young men without a history of previous pulmonary

disease. Twenty-four such cases are described. The pathogenesis is believed to be rupture of a valve vesicle or pleural or subpleural bleb. The clinical picture is usually one of sudden onset of unilateral pain and dyspnea. The average reëxpansion time is five weeks. The prognosis in the uncomplicated case is excellent.—*Simple Spontaneous Pneumothorax in Apparently Healthy Individuals, R. F. Niehaus, Am. J. Roentgenol., January, 1947, 57: 12.*—(*J. E. Farber*)

Bronchoscopy in Newborn.—Aspiration through the bronchoscope is recommended for those cases of atelectasis in the newborn in which bronchi are obstructed by secretions. All other possible causes of congenital atelectasis should be ruled out before the procedure. Coarse moist râles are usually present in suitable cases. Conservative treatment is advisable only if effective and while safe. The series includes 23 cases, 19 of which had been premature deliveries. The results were excellent in 15 cases. Eight infants were bronchoscoped without establishing a diagnosis; all eventually died; only 2 of them were found to have congenital atelectasis. Bronchoscopy is tolerated well by infants. The secretions are usually loose and the bronchial surfaces may occasionally be cohesive.—*Atelectasis of the Newborn: Treatment by Bronchoscopic Drainage, H. P. House & H. Owens, J. Pediat., February, 1946, 28: 207.*—(*W. H. Oatway, Jr.*)

Chylothorax in Infancy.—A case of spontaneous chylothorax in an infant, with recovery, is reported. Twelve other cases in the literature are reviewed. Aspiration and a low-fat diet are recommended. The prognosis for life and spontaneous healing is excellent.—*Spontaneous Chylothorax in Infancy, E. H. Watson & L. F. Foster, Am. J. Dis. Child., July, 1946, 72: 89.*—(*W. H. Oatway, Jr.*)

Penicillin Inhalation.—Therapy was given for three to seven days in pneumococcus pneumonia, for three to four weeks in streptococcus or staphylococcus pneumonia and for three days to three weeks in bronchial asthma; in bronchiectasis, treatment was given for seven days in preoperative cases and for four to six weeks in medically treated cases. The sodium or calcium penicillin salt was used; doses of 25,000 units dissolved in 1.0 cc. of saline were given six to eight times a day at intervals of three hours. The calcium salt was found to be less irritating. A vaponefrin nebulizer was used. Oxygen delivered at the rate of 5 to 7 liters per minute was found to aerosolize 1.0 cc. of penicillin solution in fifteen minutes. Good blood levels were obtained; these are not considered important. Prompt cures were obtained in 9 cases of pneumococcus pneumonia. Inhalation therapy is suggested as a supplementary treatment in cases of streptococcus, pneumococcus and Friedlander's pneumonia. Results in 22 cases of infective bronchial asthma were generally disappointing, although the susceptible organisms disappeared promptly from the sputum and there was an occasional good result. In 30 cases of bronchiectasis, inhalation therapy given for six weeks, with treatments preceded by postural drainage, resulted in great improvement. Good results were obtained with four weeks of therapy in 11 cases of aerobic lung abscess; surgical therapy was thus averted in most cases. Results in cases of anaerobic abscess were poor. Dramatic results were obtained in 6 cases of acute laryngo-tracheobronchial edema. In cases of pulmonary emphysema and emphysematous blebs, treatment had previously consisted of inhalation of 50 per cent oxygen and aerosolized bronchodilators. With added penicillin good results were obtained in 6 cases.—*Penicillin Inhalation Therapy, M. S. Segal & C. M. Ryder, New England J. Med., January 23, 1947, 236: 132.*—(*A. G. Cohen*)

Staphylococcus Pneumonia.—A series of 40 young children with staphylococcus (suppurative) pneumonia were seen during the past fifteen years. Sepsis with metastatic pulmonary abscesses is excluded; only bronchogenic pneumonia is included. A pure culture from the lungs or pleural space ob-

tained at operation, autopsy or aspiration is the only admissible evidence. The clinical categories are divided into acute and chronic cases; diffuse and localized suppuration; and those with or without pleural involvement. Clinically, the acuteness of pleural involvement is notable, as is the tendency of apparently healed pneumonitis to recur later as a chronic abscess. Roentgenologically, areas of rarefaction often suddenly appear in the consolidation. Sulfonamide therapy has been disappointing; results from penicillin have usually been brilliant. The abrupt and dangerous pleural complications should be treated at once by closed drainage, which may be curative, especially in conjunction with penicillin. If it is not, open drainage (near the bronchial fistula) should be done later, possibly followed by a fat graft if closure does not occur. A pulmonary abscess may require surgery, preferably a one stage operation. Penicillin has had scanty use in this series. Pleural complications occurred in 92 per cent, broncho-pleural fistula in 70 per cent and a fatal outcome in 37.5 per cent.—*Staphylococcic (Suppurative) Pneumonia in Infancy and in Childhood and Its Surgical Aspects, S. Blumenthal & H. Neuhof, Am. J. Dis. Child., December, 1946, 72: 691.*—(*W. H. Oatway, Jr.*)

Interstitial Pneumonia.—Boisset did 875 autopsies on children who died of pneumonia during the last five years. This represents 34.8 per cent of all autopsies during that time; 5 per cent were lobar pneumonias, 95 per cent were atypical bronchopneumonias. Of the latter, 15 per cent were interstitial bronchopneumonias; 73.6 per cent of the interstitial pneumonias occurred after whooping cough and 26.4 per cent after measles. Whooping cough pneumonia caused 11 per cent of all the deaths in the group of 875 children, but it is believed that a filtrable virus was directly responsible for the pneumonia and not *Hemophilus pertussis*. An infiltration of mononuclear cells was found in the walls of the alveoli, in the interlobular septa and in the perivascular and peribronchial tissue. Often, small vesicles of emphysema were observed on the surface of the lungs. In the most typical cases numerous isolated foci of grey hepatization surrounded by intense hyperemia were found. Sometimes, a lobular caseous pneumonia could have been mistaken for tuberculosis. One case of interstitial pneumonia with giant cells of Hetch, an extremely rare condition, was found. Although this is generally due to the virus of measles, in this case only a general vitamin deficiency was found on autopsy and no history of acute infection could be obtained. Interstitial pneumonia can be the cause of sudden death in children.—*Estudio anatomopatologico de las neumonias intersticiales, G. Boisset, Rev. del Hospital del Niño, June, 1946, 8: 130.*—(*W. Swienty*)

Chemotherapy of Bronchitis.—Congenital cystic fibrosis of the pancreas is associated with nutritional deficiency, intestinal dysfunction and chronic respiratory infection in young children. Dietary therapy is of value in preventing pulmonary lesions, but of little value after they occur. The general pattern of lung infection is uniform: a dry cough occurs, usually between the second and sixth month of life; scanty fever; no X-ray findings; cough becomes more severe; weight loss occurs; the chest becomes emphysematous; coarse râles are heard; finally the chronicity belies whatever wrong diagnosis has been made. Signs of asphyxia occur, the X-ray often shows 'snowflake' areas, viscid sputum is present and the patient may abruptly die. Occasionally the onset is delayed, with recurring 'colds', and the child may be five years of age before cyanosis and other processes begin. Hemolytic *Staphylococcus aureus* was found in 13 of 15 cases in this series. Necropsy shows a combination of acute and chronic changes. The basic change is a chronic bronchitis with peribronchial fibrosis and occasional tubular dilatation; the acute lesion is a suppurative bronchitis. There may be emphysema, lobular pneumonia and atelectasis. Sulfonamides are effective in prophylaxis and treatment of intercurrent upper respiratory infections, but not for the suppurative bronchitis. Peni-

cillin is valuable in cases with a sensitive organism. Aerosol (20,000 U., seven times a day) is best for patients over one year of age; intramuscular doses should be added where parenchymal involvement is suspected; and the latter method alone should be used for infants of less than one year. Administration of the aerosol by nasal catheter is effective but difficult in infants. In early infancy prognosis is poor. A late onset, good general condition, and the use of dietary measures plus penicillin combine for the best prognosis.—*Celiac Syndrome: IV. Chemotherapy in Infections of the Respiratory Tract Associated with Cystic Fibrosis of the Pancreas: Observations with Penicillin and Drugs of the Sulfonamide Group, with Special Reference to Penicillin Aerosol, P. E. A. di Sant'Agnese & Dorothy H. Andersen, Am. J. Dis. Child., July, 1946, 72: 17.—(W. H. Oatway, Jr.)*

Pneumatocele in Childhood Pneumonias.—The appearance of a 'cavity' in the X-ray films of children with pneumonia is common. These rarefactions are benign emphysematous bullae and must be differentiated from a true excavation; they have an excellent prognosis. They are produced by a check-valve mechanism in the swollen bronchial mucosa. Differential diagnosis and classification of pulmonary cysts are discussed. Complications (even rupture) are rare. Seven cases with one or more pneumatoceles, found in a series of 50 cases of pneumonia, are described. Fluid levels were present in 5 of the 7. The duration of the rarefaction is variable, often brief. All cleared spontaneously and all patients recovered.—*Pneumatocele during the Course of Pneumonia in Children, J. R. Almklov & A. Hatoff, Am. J. Dis. Child., November, 1946, 72: 521.—(W. H. Oatway, Jr.)*

Eosinophilic Lung and Ascariasis.—Three syndromes have been described in recent years which include eosinophilia and pulmonary changes: Loeffler's syndrome, tropical eosinophilia ('eosinophilic lung') and pulmonary ascariasis. A case is presented which apparently includes all three. A Negro child, age 2 years, who had lived in Florida was found to be toxemic, febrile, to have a cough and to have emeses and diarrhea. He had eaten considerable amounts of dirt, had had eczema and possibly pneumonia and whooping-cough. The liver was moderately enlarged. X-ray films of the lungs showed peritruncal accentuation at the bases. The white count varied from 21,000 to 117,000, with 31 to 82 per cent eosinophils. A liver biopsy showed multiple tiny areas of focal necrosis. Episodes of edema of the lips occurred. Methionine was used to protect the liver. He vomited a single male ascaris. Hexylresorcinol was prescribed, and his symptoms, X-ray changes, hepatomegaly, focal necroses and leucocytosis returned to normal. The percentage of eosinophils and the sedimentation rate remained elevated.—*Chronic Eosinophilia: Report of a Case with Necrosis of the Liver, Pulmonary Infiltrations, Anemia, and Ascaris Infestation, Josephine G. Perlingiero & P. György, Am. J. Dis. Child., January, 1947, 73: 34.—(W. H. Oatway, Jr.)*

Cress for Catarrhal Bronchitis.—While the use of common cress (*Lepidium sativum*) in bronchial processes has long been known, attention is again called to the drug because of its availability in Brazil. The author has confirmed its value as an expectorant and especially as an aid in the treatment of acute and chronic bronchitis. The active principle is lepidin, an iodine-containing glucoside.—*O Emprego do Mastruco nas Bronquites Catarrais, D. Fonseca de Carvalho, Clín. Tisiol., April–June, 1946, 1: 33.—(A. A. Moll)*

Anomalous Pulmonary Veins.—Anomalous pulmonary veins have been classified in two groups; cases in which only a part of the blood from the lungs entered the right atrium by direct or indirect routes; and cases in which all the pulmonary blood reached the right atrium. The latter situation is believed to be incompatible with life. A minimum of 50 per cent of the aerated blood must reach the left atrium to sustain life; with 75 per cent there will be no recognizable cardiorespiratory

symptoms. A case of congenital malformation of the heart and aorta with drainage of the pulmonary veins into the ductus venosus is reported. A male child was delivered weighing 10 lbs. At the time of birth the child was cyanotic and had the umbilical cord wrapped twice around his neck. At thirty hours the infant suddenly became dyspneic and cyanotic and died on the twelfth day in severe respiratory distress. The postmortem examination revealed a cyanotic infant in whom all organs were normal except for anomalies of the heart, aorta and pulmonary veins. The left side of the heart was very small and no blood vessels entered the left atrium. The aorta exhibited a coarctation at a point just distal to the left subclavian artery. The pulmonary veins united near the hilus of each lung to form two trunks. These fused in the midline posterior to the heart to form a single vessel which passed through the diaphragm close by the inferior vena cava to empty into the ductus venosus just above the obliterating umbilical vein. The ductus venosus was still patent and communicated freely with the inferior vena cava. Blood, therefore, oxygenated in the lungs had to pass through the common trunk formed by the pulmonary veins into the ductus venosus and thence into the inferior vena cava, with a probable backflow into the umbilical vein and the adjacent portal vein. Oxygenated blood was thus mixed with the purely venous blood of the inferior vena cava. As it entered the right atrium the blood was again mixed with the purely venous blood of the superior vena cava. From the right atrium the mixed blood passed into the pulmonary circuit, through a patent ductus botalli into the peripheral circulation, through an open foramen ovale into the small left atrium, and through a small intraventricular defect into the left ventricle. The mixed blood from the left atrium and left ventricle passed into the aortic arch and its vessels, encountering resistance at the point of coarctation. No organ or part of any organ received purely arterial blood. Only one somewhat similar case was found in the literature although several cases have been reported with complete or incomplete pulmonary venous drainage into vessels inferior to the right atrium. (Illustrated.)—*Drainage of the Pulmonary Veins into the Ductus Venosus Arantii: Report of a Case, W. H. Mehn & F. E. Hirsch, Am. J. Path., January, 1947, 23: 125.*—(*J. S. Woolley*)